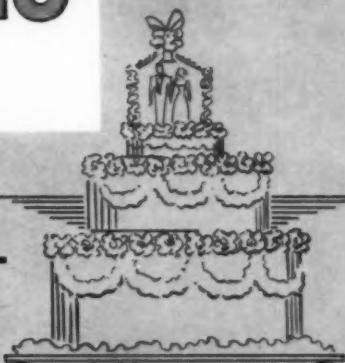


JUNE 1955

COMMERCIAL REFRIGERATION & AIR CONDITIONING

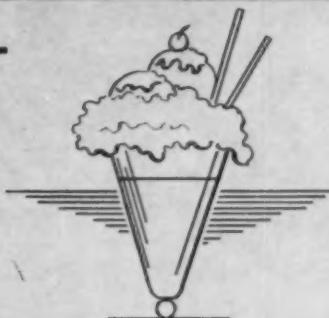
BAKERIES use refrigeration as a tool for planning production, minimizing wastes, and increasing sales and profits
(see pages 48, 56, 58)



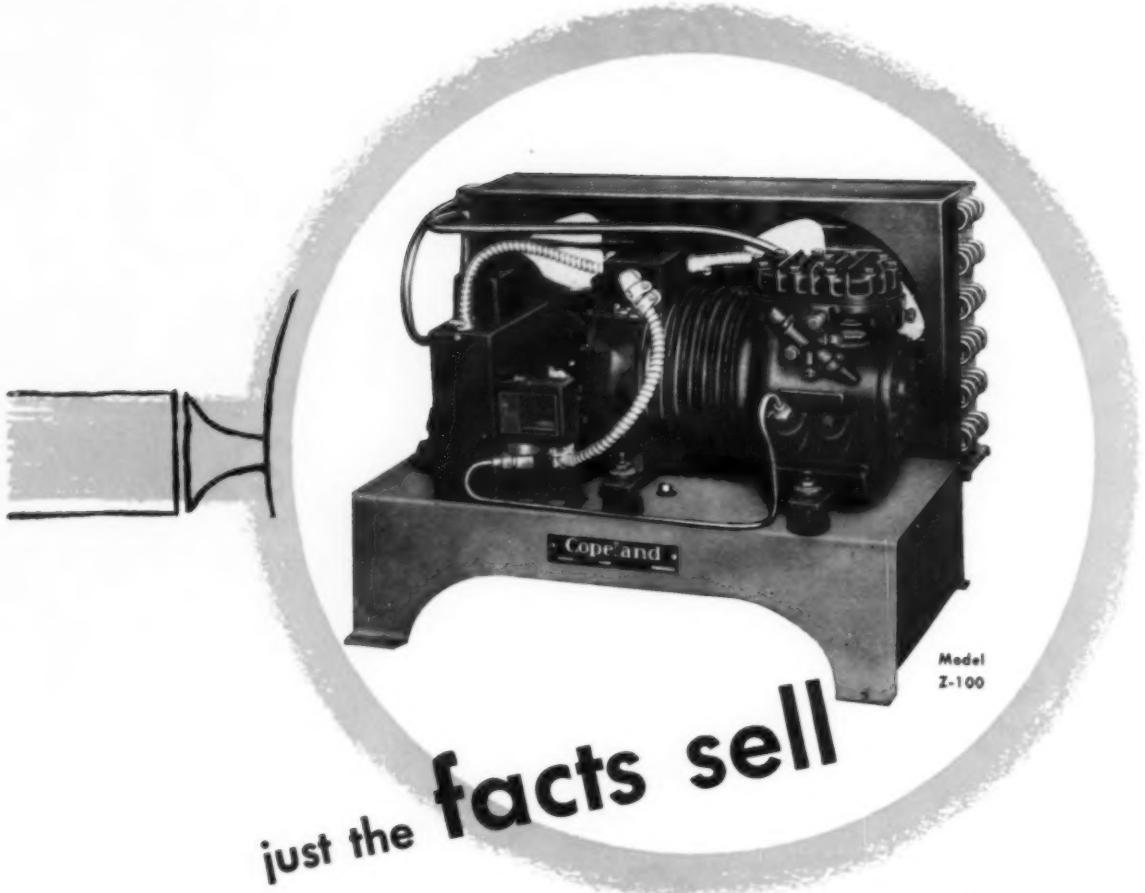
DRUG STORES constitute a growing market for display cases, now that they are edging into the food merchandising field in many localities
(see page 46)



SODA FOUNTAINS can mean a 15% business "bonus" for trend-wise commercial refrigeration firms
(see page 50)



MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT



just the facts sell

COPELAMETIC

THE *Accessible* HERMETIC

Take a fact like direct drive, hermetically sealed. Your customer will know this Copelametic feature eliminates breakdowns from frayed belts and leaky seals. No manual oiling to worry about, either.

But your prime sales maker is Copeland-engineered "accessibility." The rare servicing needed by Copelametic is taken care of on

the spot by your own mechanics . . . no lost time for factory repairs.

Quiet-running, efficient Copelametic units are available for all applications, remote or self-contained. Air-cooled models from 1/6 H.P. through 3 H.P., water-cooled, 1/3 H.P. through 7½ H.P.



REFRIGERATION UNITS (OPEN TYPE AND COPELAMETIC) WATER COOLERS

Copeland
DEPENDABLE *Electric* REFRIGERATION



COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO

Circle No. 1 on Reader Service Card



easy to handle

in *hard-to-reach spots*

ALCO 402 THERMO VALVES THE SMALL-FIXTURE VALVES

You install them in any position—upright, sideways, upside down.

They're small and compact—fit in your hand.

You save work and time!

Built-in pressure limiting device prevents motor burn-out.



Freon-12— $\frac{1}{4}$,
 $\frac{1}{2}$ and 1 Ton
Freon-22—.4,
.8 and 1.6 Tons
Methyl Chloride
— $\frac{1}{2}$, 1 and 2 Tons

ALCO 402 — ENGINEERED FOR
SERVICE ENGINEERS



ASK YOUR ALCO WHOLESALER

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers of Thermostatic
Expansion Valves; Evaporator Pressure
Regulators; Solenoid Valves; Float Valves;
Float Switches.

Call for Bigger Profits

Bigger profits from air conditioning are as near as your telephone. Call your Brunner Distributor for the profit story on the complete Brunner line of Air Conditioning Condensing Units and Packaged Air Conditioners.

Brunner Distributors blanket the country with a service network unsurpassed in the air conditioning and refrigeration industry.

Your Brunner Distributor carries a full Brunner inventory . . . offers prompt delivery service on complete air conditioning and refrigeration units, or repair and replacement parts. He offers the widest range of sizes and models, from one source.

He's your right-hand man for sales and application help . . . and his credit facilities offer advantages to qualified dealers.

SELL BRUNNER . . . with bigger profits for you . . . lasting satisfaction for your customers. Get acquainted with your Brunner Distributor . . . TODAY!

BRUNNER MANUFACTURING CO. Dept. G-655 UTICA, N.Y.
The Brunner Co., Gainesville, Ga.

In Canada: **BRUNNER CORP. (Canada) Ltd.**, Toronto, Ontario

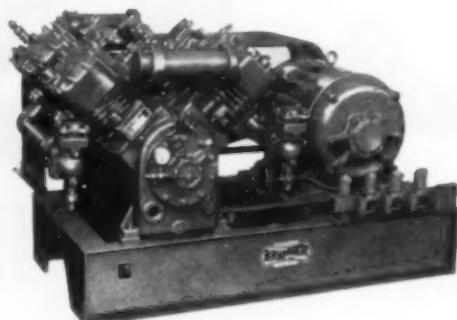


BRUNNER EXTRAS

- Compressor Experience
- Product Research
- Design Engineering
- Wide Product Range
- Proven Quality
- Complete Dependability
- Easy Servicing
- Warranted Performance
- Nearby Distributor Service
- Profit Opportunity
- Advertising Support
- Sales Promotion Help

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JUNE, 1955 • COMMERCIAL REFRIGERATION



BRUNNER AIR CONDITIONING CONDENSING UNITS

. . . for remote installation in commercial and industrial applications, are supplied in sizes from $\frac{1}{4}$ to 75 H.P. with capacity control. Brunner compressor units for use with evaporative condensers also available up to 75 H.P.

BRUNNER PACKAGED AIR CONDITIONERS

. . . completely self-contained, in models and sizes from 2 to 20 H.P., for business or commercial installations. All components are Brunner-built. BAC units are easy to install, cost less to operate.



COMMERCIAL REFRIGERATION & AIR CONDITIONING

IN
THIS
ISSUE

JUNE 1955 • VOLUME 12 • No. 6

FEATURE ARTICLES

46 **NEW FACE IN THE FOOD FIELD . . .** Now that many drug stores are beginning to actively engage in food merchandising, a whole new class of prospects is opening up for refrigeration dealers.

48 **IT TAKES TWO . . .** Yes, it takes two types of equipment to handle the refrigeration needs of the modern bakery. Here's how one shop uses freezer and dough retarder as an effective team.

49 **THESE LITTLE DUCKS GO TO MARKET — FROZEN . . .** thanks to the processing plant designed and installed by an East Coast contractor.

50 **WHY GIVE AWAY 15% OF THE JOB? . . .** That's what refrigeration distributors are doing when they turn down soda fountain business. A fountain specialist points up this new opportunity.

54 **BALANCING THE REFRIGERATION SYSTEM . . .** with the aid of proper flow control devices. Part 5 deals with solenoid valves of various types.

56 **ELIMINATE BAKERY "PROFIT LEAKS" . . .** That's what one shop has accomplished by adapting a used dairy case to the purposes of cake display.

58 **MEET SHOPPING CENTER COMPETITION . . .** That's what this downtown bakery has been able to do through the intelligent application of adequate refrigeration facilities.

Air Conditioning Section

73 **GIVE YOUR PROSPECT A CHOICE . . .** and you'll find you can close more sales. That has been the experience of this contractor who makes a practice of submitting two bids instead of one.

74 **THIS JOB LOOKED TOUGHER THAN IT REALLY WAS . . .** When it appeared that a central system just wouldn't make sense in this stone-walled building, window units proved to be a practical answer.

76 **HOSPITALS NEED COOLING . . .** as well as heating, so this Augusta, Ga., institution proved a prime customer for two local contractors.

78 **AIR CONDITIONING PLAYS KEY ROLE . . .** in output of polio vaccine. Here's how special equipment was supplied for Dr. Salk's tissue culture laboratory.

80 **REDUCING SOLAR HEAT LOAD . . .** can be a big help in cutting cooling requirements. Here are several ways in which this factor can effectively increase air conditioner capacity.

DEPARTMENTS

About People	14	New Products	86, 105
BTU's	45	Contractor News	99
Commercial Sales News	62	Here's How	131
Applications Manual	66	Index to Advertisers	136
Useful Literature	82, 102		

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IT'S JUST GOOD SENSE...

Wagner Replacement Parts for Wagner Motors!

Genuine Joe says:



Save time and money
with NEW **Wagner®**
MOTOR REPAIR KITS



You don't have to hunt around for individual parts to repair small Wagner motors when you keep these new Wagner Motor Repair Kits handy. They have all the parts you need for minor mechanical repairs.

You can do a better job and you can do it quicker and more economically because you have all the *genuine* Wagner parts you need *right at your fingertips*.

The SA-2392 Kit is for Wagner RA and KA motors in the 56, 57 or 65 frame size and the SA-2393 Kit is for Wagner RB and RK motors in the same frame sizes. Order a supply today from your Wagner Parts Distributor or Authorized Service Station.

Be sure to get the Electrical Service Catalog MU-40

Every repair shop needs this valuable help. It gives you the catalog number and price of all Wagner Motor Parts—and it's yours for the asking.



WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

MOTORS • BEARINGS • STANDARD MOTORS
BRUSHES • CAPACITORS • COMMUTATORS

OVER 850 AUTHORIZED SERVICE STATIONS
OR PARTS DISTRIBUTORS

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the best performers on earth

MUELLER BRASS CO. *Streamline*
REFRIGERATION AND AIR CONDITIONING PRODUCTS

Step right this way, refrigeration men, see the spectacular parade of the greatest performers on earth now at your wholesaler's.

The lion is the acknowledged king of beasts and Mueller Brass Co. wrot and flare fittings are the unchallenged leaders in the field for strength and durability.

flare fittings



Mueller Brass Co. globe line valves are real tigers for performance. They're quick to respond . . . they open easily, close firmly, are simple to install, sleek and smooth in appearance.

packed line valves



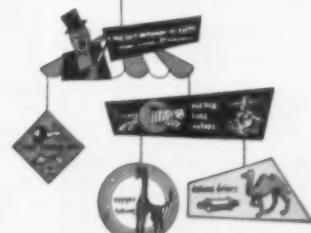
copper tubing



Don't stick your neck out like the giraffe, use only the best . . . use clean, bright Mueller Brass Co. copper tubing . . . it's right for every job.

SEE THIS DISPLAY AT YOUR WHOLESALER'S

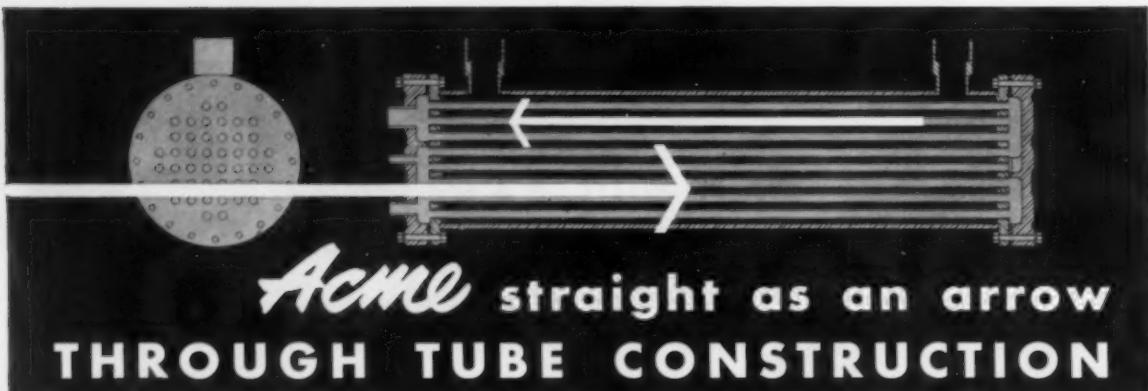
This ad only shows part of the parade . . . see the giant, colorful "flying mobile" now on display at your wholesaler's, attracting attention to the "best performers on earth".



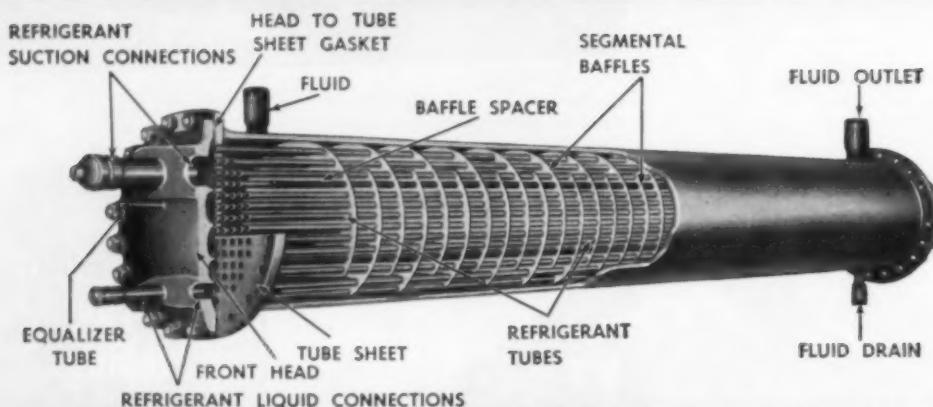
MUELLER BRASS CO. PORT HURON 10, MICHIGAN

Circle No. 6 on Reader Service Card

& AIR CONDITIONING • JUNE, 1955



**one reason why you should specify
Acme DRY-EX® LIQUID CHILLERS
for efficient performance**



The straight as an arrow full size tubes of Acme-originated Dry-Ex Liquid Chillers have no curves, no bends, no welds. With multipass heads at each end of the tubes, a clear, unobstructed passage is provided for high velocity flow of refrigerants. The above features provide maximum heat transfer area for guaranteed efficiency and compactness. Oil return is positive. Refrigerant tubes are cleanable. Individual tubes can be replaced if rupture is ever caused through system control failure.

Other features include factory specified baffle spacing to fit job requirements exactly. Cast steel refrigerant heads are stocked in a range of perfected pass designs to solve all types of single and multiple-circuit needs.

Dry-Ex Chillers are made in 1 to 200 ton capacities, with over 700 baffle and shell combinations available. Acme, original manufacturer of direct expansion type chillers 18 years ago, produces more Dry-Ex type liquid chillers than all other manufacturers combined.

**Dry-Ex is Serving
Firms Like These —**

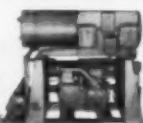
Bell & Howell Co.
Libby-Owens-Ford
Santa Fe Railway Co.
Johns Manville
Bohn Aluminum & Brass Corp.
Container Corporation
Minneapolis-Honeywell
Giddings & Lewis
Gates Rubber Co.
Raytheon Co.
Ohio Edison Co.



Acme Cooling
Towers and
Evaporative
Condensers



Flow-Therm®
Packaged
Liquid
Chillers



Flow-Cold®
Packaged
Liquid
Chillers



Write for
new Acme
Dry-Ex
Catalog.

WORKING WITH ARCHITECTS, ENGINEERS AND MANUFACTURERS ON AIR CONDITIONING AND REFRIGERATION SINCE 1919

ACME INDUSTRIES, INC.

JACKSON, MICHIGAN



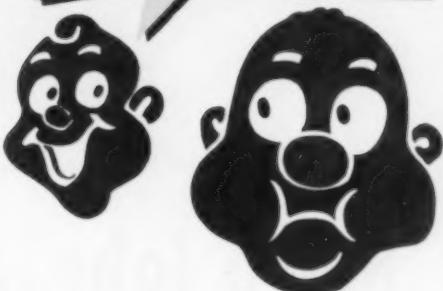
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JUNE, 1955 • COMMERCIAL REFRIGERATION

ADDS PRESTIGE!



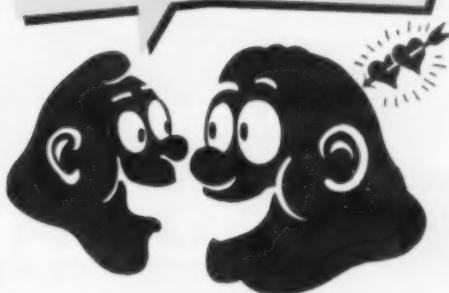
INCREASES EFFICIENCY!



GREATER SALES!



AND IT PAYS FOR ITSELF AS
YOU PAY FOR IT MONTHLY!



Selling takes time—
Time makes selling easy!

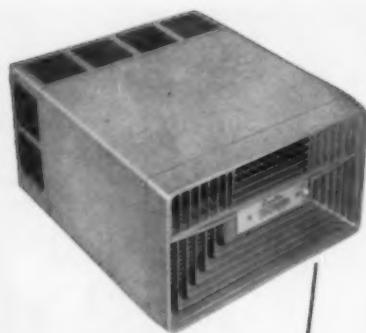


To clinch more sales in less time, quote a *monthly payment*, not a *total cash price*. Many of your prospects need their working capital and usual lines of credit for current operations. No matter how much they need your equipment, they probably won't sign your order *now* unless you show them a convenient, practical way to pay. That's the **COMMERCIAL CREDIT PLAN** way. When can we tell you our story? Phone our office in your city or write **COMMERCIAL CREDIT CORP.**, 14 Light St., Baltimore 2, Maryland.



**COMMERCIAL
CREDIT
CORPORATION**

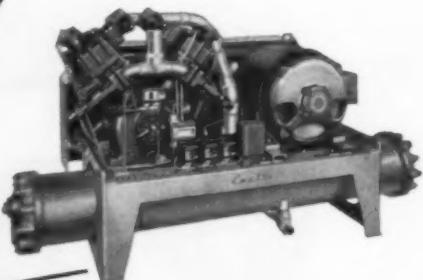
A service offered through subsidiaries of
Commercial Credit Company, Baltimore...
Capital and Surplus over \$175,000,000
...offices in principal cities of the United
States and Canada.



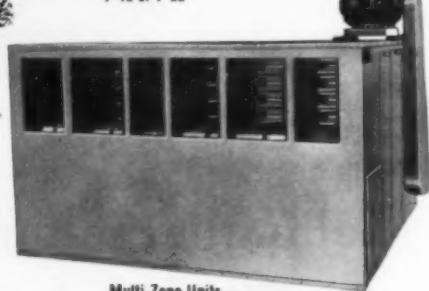
Window Air Conditioners



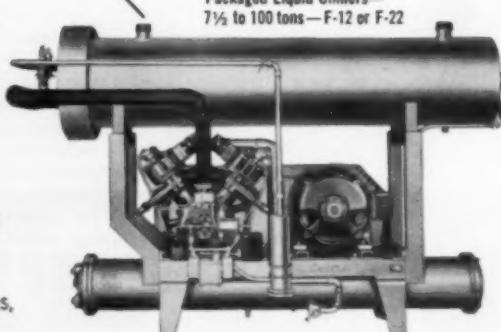
Packaged Air Conditioning units—2 to 20 tons



Condensing units up to 100 tons—F-12 or F-22



Multi-Zone Units—serving 2 to 8 zones



Packaged Liquid Chillers—7½ to 100 tons—F-12 or F-22

More jobs...
More profit!
WITH THIS
complete
Curtis
LINE

You'll sell more jobs, and make more profit, with this well-rounded Curtis line. Curtis equipment sells readily because it is backed by one of the oldest and most respected names in the business. Curtis products are presold for you by hard-hitting national advertising in *Saturday Evening Post*, *Time* and *Newsweek*, plus many national business and trade magazines.

WRITE TODAY for information on how you can obtain a Curtis direct factory franchise.

Curtis REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1915 Kienlen Avenue, St. Louis 20, Missouri

Other Curtis Products: INDUSTRIAL AND AUTOMOTIVE AIR COMPRESSORS,
AUTO LIFTS, CAR WASHERS, AIR HOISTS

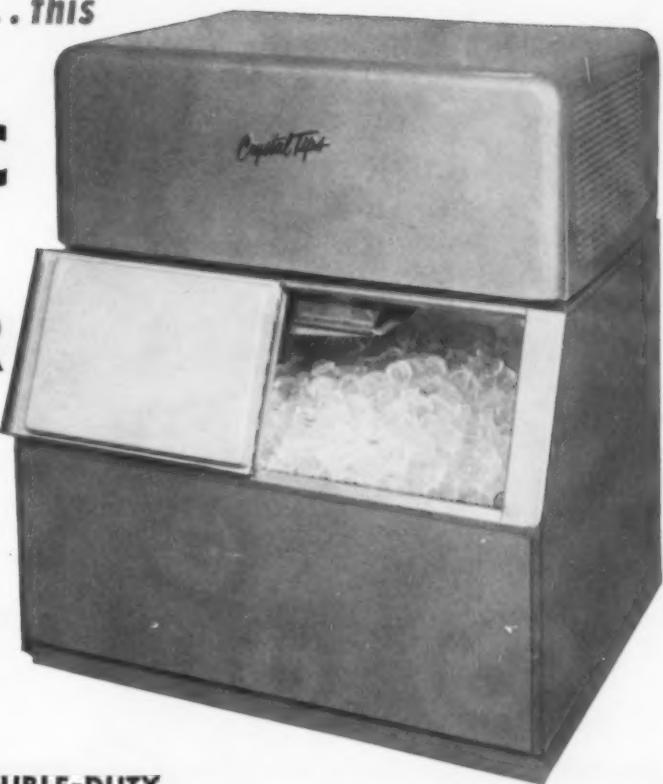
829

Circle No. 9 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

way ahead of its time...this

AUTOMATIC *money* ICE MAKER



DOUBLE-DUTY
Crystal Tips or Chips
MODEL B-200

AUTOMATIC ICE MAKER



The all new Crystal Tips B-200 ice maker's 2-in-1 feature puts it "ahead of its time" and the field. See it and you'll agree that it makes all other ice makers obsolete.

The Crystal Tips 2-in-1 feature provides both cubed and chipped size ice without grids or extra crushing mechanisms. One B-200 gives you two ice makers for the price of one. No need for accessories that add to your cost.

In 24 hours the B-200 produces over 3,700 large, individually frozen, uniformly sized, easy handling circular pieces of ice. The bin stores a full day's production.

Installation is simple, needs only $\frac{1}{4}$ " supply, nominal drain, and 115 volt current. It is a good money maker for any dealer.

IT IS A REAL MONEY MAKER!

Every quantity user of ice is a prospect for this versatile 2-in-1 unit. The prospect's own figures on present costs of ice show him how the Crystal Tips or Chips Ice Maker pays for itself. Literature and mailing pieces supplementing the national advertising are available for your direct mail use. Write for further information.

AMERICAN AUTOMATIC ICE MACHINE CO.

1703 Fourth Street N.W.

A Subsidiary of McQuay, Inc., Manufacturers of Heat Transfer Equipment Since 1923

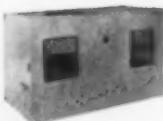
Faribault, Minn.

Circle No. 10 on Reader Service Card

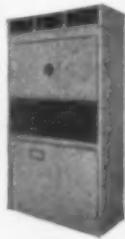
& AIR CONDITIONING • JUNE, 1955



A Specialist has only one level!



Packaged Waterless (Air-Cooled) Air Conditioners—no water needed, no plumbing required. 2, 3, 5 and 7½ H.P.



Packaged Water-Cooled Air Conditioners in 6 models, from 2 to 15 H.P.

AIRTEMP has only one interest—air conditioning! This specialization will help you sell!

Airtemp's specialization brings you many selling advantages:

Sales are higher—when you deal with a *specialist*! Airtemp makes only air conditioning equipment. As a dealer, you get 100% of Airtemp's attention and guidance.

Sales are higher—when you offer a *complete line*! Airtemp manufactures a full range of 10 different models—both water-cooled and waterless.

Sales are higher—when you sell the *leader*! In "Packaged" air conditioning, more Airtemp units have been sold than any other kind. This Airtemp leadership, plus the trusted Chrysler name, assures you of full public acceptance.

Sales are higher—when you're with a *pioneer*! Airtemp pioneered "Packaged" air conditioning 18 years ago. This experience has kept Airtemp out in front through the years.

Sales are higher—when you're backed by *advertising*! Your prospects are pre-sold on the Airtemp line by regular, hard-selling advertising campaigns.

If you want full information on how Airtemp Packaged Cooling Franchises are bringing big profits to dealers, write to: Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.

Airtemp
DIVISION OF CHRYSLER

"The Line That Pays"



AIR CONDITIONING • HEATING FOR HOMES, BUSINESS AND INDUSTRY

Circle No. 24 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

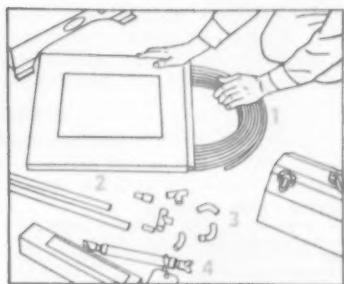


COMPLETE LINE OF
ANACONDA REFRIGERATION PRODUCTS

OFF TO A GOOD INSTALLATION ...

Why? Because the copper piping on this installation, as on all he makes, is going to be an all-Anaconda job. Uniform temper and exact fitting for fast connection speed up his work . . . help maintain his reputation for quality. He buys only

from his regular wholesaler and gets the prompt, reliable service he wants. Your own jobber will meet all your piping needs with the same dependable service. Ask for ANACONDA Refrigeration Products. Look for the ANACONDA Trademark.



4 QUALITY PRODUCTS, EACH THE RESULT OF MODERN MANUFACTURING METHODS

1. Copper tubes in 50-ft. coils.
2. Hard copper tubes in straight lengths.
3. Fittings (elbows, tees, couplings, unions, adapter and reduction combinations, etc.).
4. American Vibration Eliminators.

THE AMERICAN BRASS COMPANY, Waterbury 20, Conn.
In Canada: Anaconda American Brass Ltd., New Toronto, Ontario



Circle No. 18 on Reader Service Card

For PUMPS

*you just can't beat
the Line that's Complete*



TYPE PE-A $\frac{1}{4}$ - $1\frac{1}{2}$ hp. Facemount design NEW NEMA type motor. Compact, efficient, shaft seal equipped.



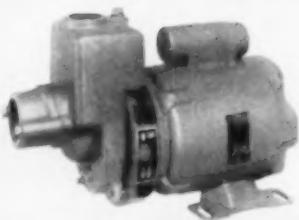
TYPE PE-200 2, 3, 5, hp. Economical, compact. Facemount design. Versatile, good looking.



TYPE PN $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$ hp. For low head pumping. Shaft seal equipped. New facemount NEMA type motor.



TYPE BSP $\frac{3}{4}$ hp. Close coupled, selfpriming pump. Excellently suited to high capacity pumping.



TYPE ESP $\frac{1}{2}$, $\frac{3}{4}$, 1 hp. Facemount design. Ideal for swimming pools. Versatile, shaft seal equipped.



TYPE CP & TCP Vertical flanged suction pump. Open or explosion-proof motors. $\frac{1}{4}$ to $7\frac{1}{2}$ hp. Excellent ratings.

*Types, sizes, models for
every need on every job!*

PEERLESS GENERAL PURPOSE

They all have built-in quality,—that's Peerless craftsmanship. They all have excellent performance ratings,—that's Peerless efficiency. They all have remarkably trouble-free operating records,—that's Peerless dependability. They all are quality engineered, reasonably priced,—that's Peerless economy. And all are quickly available from two big factories,—that's Peerless service. Get the facts today.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION

Factories: Los Angeles 31, California and Indianapolis 8, Indiana

Fluidyne® PUMPS



PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
2005 Northwestern Avenue, Indianapolis 8, Ind.
or 301 West Avenue 26,
Los Angeles 31, California.

Please send bulletins on pumps
checked below

Type PEA Type PE 200 Type PN
 Type BSP Type ESP Type CP
 Complete Line

Name _____

Company _____

Address _____

City _____ State _____

CR&AC

PUMP	HP	CAPACITIES	HEADS
PEA	$\frac{1}{4}$ - $1\frac{1}{2}$	to 65 gpm	to 110 ft.
PE 200	2, 3, 5	to 190 gpm	to 140 ft.
PN	$\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$	to 60 gpm	to 30 ft.
BSP	$\frac{3}{4}$	to 78 gpm	to 55 ft.
ESP	$\frac{1}{2}$, $\frac{3}{4}$, 1	to 69 gpm	to 50 ft.
CP	$\frac{1}{4}$ - $7\frac{1}{2}$	to 250 gpm	to 100 ft.

Circle No. 13 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

Defrost Problems? HERE IS THE ANSWER!...

ELECTRIC

Heat-Cel
Automatic
DEFROST

FOR NEW OR EXISTING INSTALLATIONS

"Heart of the System"

CHECK THE ADVANTAGES OF THE *Heat-Cel** SYSTEM

- Heat for re-evaporation supplied by low wattage, long life ELECTRIC HEATER.
- Positive, consistent, economical.
- Performs in any ambient, regardless of location or season.
- Independent of compressor operating time or type (air or water cooled).
- Solution temperature automatically maintained by thermostat.
- Heater replaceable in the field.
- Adjustable for individual operating conditions.
- No special controls needed for winter-time operation.
- Higher wattage elements available for extreme conditions.
- Patented DOLE VACUUM principle insures faster heat transfer for quicker defrosting . . . convenient "plate" design allows flat-against-wall mounting.

Defrosting "Kit" includes *Heat-Cel* and Accessory Package containing all necessary controls

Write for Engineering Catalog DE.

*Approved by Underwriters Laboratories

DOLE REFRIGERATING COMPANY

5942 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N. Y.

In Canada: Dole Refrigerating Products Limited, 44 Elgin Street, Brantford, Ontario



Circle No. 14 on Reader Service Card

ABOUT PEOPLE

C. M. (Bud) Lane has been appointed sales manager of Penn Boiler and Burner Mfg. Corp., Lancaster, Pa. Lane has been on Penn's sales staff since 1952. His business experience includes sales

and supervisory work with Standard Oil Co., American Tobacco Co., Walgreen Drug Co., and the Plumbing and Heating Div. of Sears, Roebuck and Co.



Duane B. Becker has been named district sales manager of Research Products Corp. in their air filter division for Wisconsin, Minnesota and the Dakotas.



Becker has been associated with the company since 1947, and has been most prominent recently in the development of the company's new "Aprilaire" automatic-electric humidifier. His appointment fills the vacancy created by the promotion of K. H. Lindquist to special products sales manager.

Eugene G. Swartz, vice president and treasurer of Flexible Tubing Corp., has been elected a director of the firm. He joined Flexible Tubing in November, 1948 and was elected secretary of the corporation in March, 1949. He was elevated to vice president and treasurer in March, 1951.

Charles F. Cox and **Raymond G. Albert** have joined the Brunner Mfg. Co.-Brunner Co. sales organization, Cox as district sales manager of a newly created south-central territory and Albert as sales manager of the Iowa-Nebraska district. Cox until recently was head of his own contracting firm in the Washington, D. C. area, and from headquarters in Jackson, Miss., will cover Alabama, Mississippi, Louisiana, and



C. F. Cox

R. G. Albert

parts of Arkansas, Tennessee, and Florida. Albert will make his headquarters in Des Moines, and fills a vacancy caused by the recent retirement of J. R. Reid. He recently was with Vincent Refrigeration & Heating Supply Co., Minneapolis.

Sumner Ladd has been appointed manager of the Industrial Controls Div. of General Controls Co., Glendale, Calif. Previously Ladd served as a factory sales engineer, acting in a liaison capacity

between the company's engineering and sales division for the industrial, refrigeration and heating product lines. He held this position for two years, following a tour as salesman operating from the Los Angeles branch office.

Henry Banks Edwards has been appointed southern regional sales manager for Acme Industries, Inc. He will have an eight-state area with headquarters in

Houston, Tex. He was associated with Carrier Corp., for 20 years, in the fields of applied engineering, research, sales and distribution, in Los Angeles, Mobile, Richmond, Va., and Honolulu.

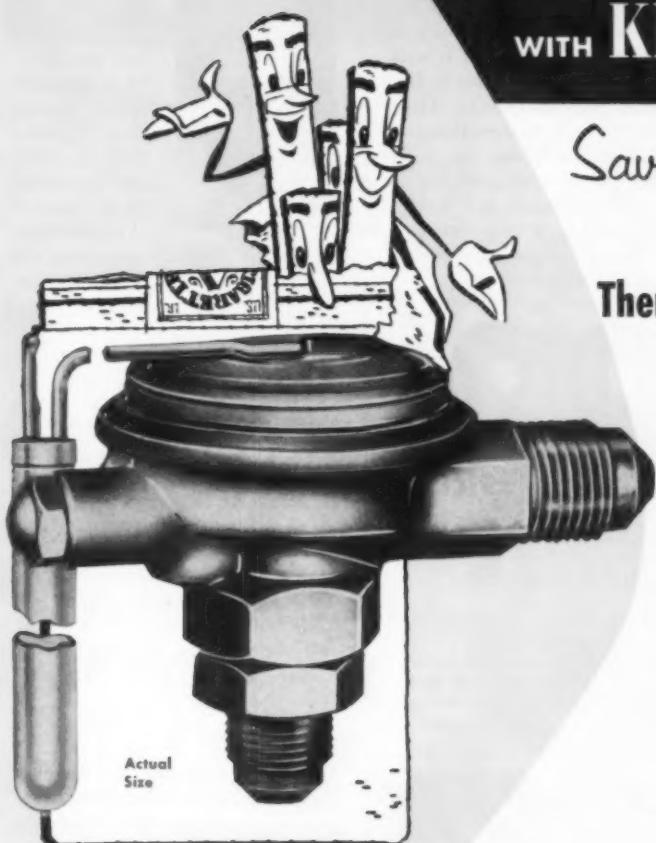
Richard A. Geuder has been appointed assistant general sales manager of the Reliance Electric and Engineering Co. and **Edward E. Helm**, sales vice president, has been assigned the added duties of Co-ordinator of all activities in merging the efforts of the recently acquired Reeves Pulley Co. Div. with the other divisions of Reliance in Cleveland and Ashtabula, Ohio, in the manufacture and sale of variable-speed drives. **Frank B. Carr** from the Reliance home sales organization has been transferred to the Reeves division at Columbus, Ind., as resident co-ordinator.

Frank P. Gibbons, for 14 years general sales manager of Viking Air Conditioning, Cleveland, Ohio, is opening his own office as a manufacturers' representative to the trade. Describing the move as a long-cherished goal, Gibbons said he will include Ohio, western Pennsylvania, and eastern Indiana in his territory. He will have his offices in Cleveland.



Four administrative appointments involving executives of The O. A. Sutton Corp. have been announced. **Dale W. Gordon**, who has been vice president and treasurer was advanced to executive vice president. Gordon joined the Sutton organization five years ago. **Harold W. Bartley** who formerly was director of materials has been appointed vice president for materials. **Dan J. Mull** was appointed vice president for engi-

THE COMPACT VALVE
WITH KING-SIZE CAPACITY!

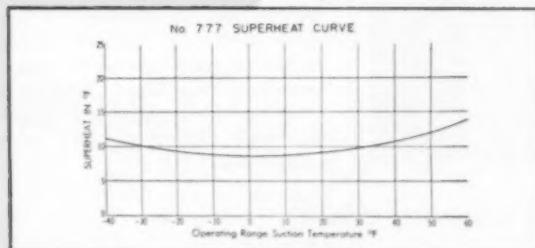


Save Time, Money, Effort
with DETROIT
Thermostatic Expansion Valves

- Capacities — $\frac{1}{2}$ to 2 tons, F-12 — Standard Valve — 1 to 3 tons, F-12 — External Equalizer
- "C" and "Z" cross charges available
- Compact, rugged construction
- Mount in any position
- Easily cleaned cartridge needle and seat assembly
- Accessible and easy superheat adjustment
- Large inlet strainer, easily cleaned
- Available with or without external equalizer connection
- External equalizer type easily converted to internal equalizer right on the job.

777 "SPACE SAVER"

With "C" charge . . . the long range valve . . .
For both high and low temperature operation.



THE MOST VERSATILE
THERMOSTATIC EXPANSION VALVE

DETROIT
CONTROLS CORPORATION



8900 TRUMBULL • DETROIT 8, MICHIGAN
Division of AMERICAN RADIATOR & STANDARD SANITARY Corporation



Representatives in Principal Cities • Canadian Representatives: RAILWAY AND ENGINEERING SPECIALTIES, LTD., Montreal, Toronto, Winnipeg.

AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

Serving home and industry

AMERICAN STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

neering. Mull formerly served as chief engineer for the organization. The appointment of **Robert G. Cordes** as director of quality was also announced.

J. T. (Ted) Roselle has been appointed a district manager, Valve Department, Ohio Brass Co., in the New York office. Before joining Ohio Brass he was a product sales manager with B. F. Goodrich Co.'s Sponge Products Div.

Cecil Merryman has been appointed manager of the service and parts departments of Bastian-Blessing Co. He has had 20 years experience in the refrigeration and food equipment fields, and is well known for technical articles he has written for trade magazines. **Tom Daugherty**, with Bastian-Blessing for the past four years, has been promoted to assistant manager of the parts department, and **Tracy Walkendorf**, a two-year employee, has been appointed assistant service manager.

W. M. Mayo has been elected vice president in charge of manufacturing of The Warren Co., Inc. He was also elected a director. Mayo joined the Warren firm in 1937, and has served in a number of capacities during his 18-year tenure with the company. Since 1950 Mayo has been Warren's production manager.

PA[®] 400

DAVISON'S NEW Refrigeration Desiccant

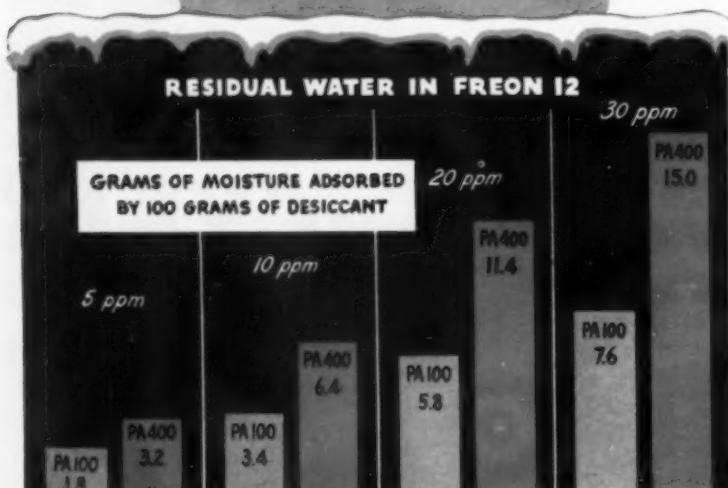
WITH GREATER MOISTURE ADSORPTION CAPACITY

Up to 98% increase in moisture capacity

The Davison Chemical Corporation has long been a leading producer of refrigeration desiccants and the manufacturer of PA 100 — the top desiccant in the field. Now, after many years of research, they have produced PA 400 — a refriger-

ation desiccant with a greatly increased adsorption capacity.

Tests run on the moisture adsorption capacity of PA 400 in Freon-12 in comparison with Davison's PA 100 show up to 98% increase in capacity.



SEE YOUR
JOBBER TODAY
OR WRITE...

PA
400

Progress Through Chemistry

DAVISON CHEMICAL COMPANY

Division of W. R. Grace & Co.

Baltimore 3, Maryland

Producers of: Catalysts, Inorganic Acids, Superphosphates, Triple Superphosphate, Phosphate Rock, Silica Gels and Silicofluorides. Sole Producers of DAVCO[®] Granulated Fertilizers.

*T.M. REG. APPLIED FOR

Circle No. 16 on Reader Service Card



Henri Soumerai has been appointed assistant chief engineer of the Refrigeration Compressor Department at the Holyoke Works of Worthington Corp. He will continue in the responsibility for design and development of hermetically-sealed compressors, low temperature refrigeration systems and water-cooled refrigeration condensers.

Richard F. Gang, for the past four years assistant sales manager, has been appointed general sales manager of the Viking Air Conditioning Div. of the National-U.S. Radiator Corp., Cleveland, Ohio. In



his new post, Gang succeeds Frank P. Gibbons, who has left Viking to become a manufacturer's representative. He joined Viking in 1949 as sales promotion manager and was named assistant sales manager in 1951.

Three changes affecting top management personnel of the A. O. Smith Corp.'s Permaglas Div. have been announced. **J. H. Brinker**, who has been director of marketing for the past several years, becomes general manager of the Permaglas Div. **S. E.**



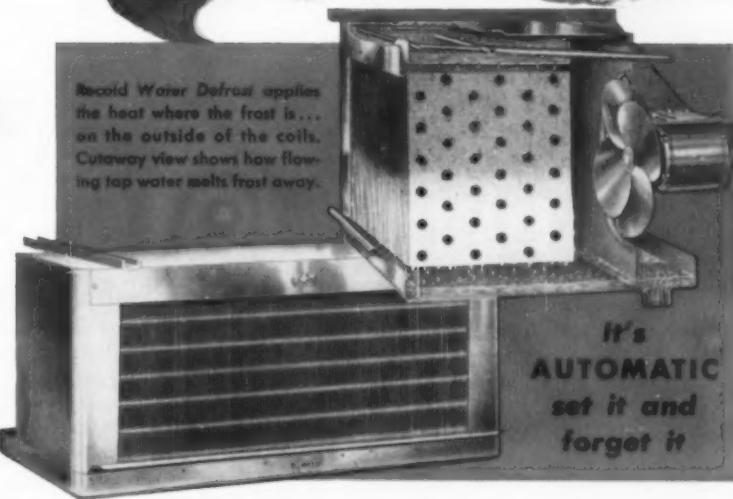
Wash the frost off the natural way

...in 5 minutes!

WATER DEFROST is fast, easy, positive, economical. Ordinary tap water, controlled by an automatic timer, periodically washes the frost off. That's all there is to it. Low cost equipment. Low cost installation. Low cost operation. Does not complicate the refrigeration system or cause service problems. And patented RECOLD Water Defrost is so fast—four or five minutes—that you actually continue to freeze while defrosting.

For every type of low temperature application,

RECOLD Water Defrost applies the heat where the frost is... on the outside of the coils. Cutaway view shows how flowing tap water melts frost away.



from the world's largest refrigerated warehouse to a reach-in refrigerator, RECOLD Water Defrost Coils have established an outstanding record of performance. Be sure. Specify RECOLD Water Defrost Coils.

AUTOMATIC
Recold **WATER DEFROST COILS**
Fast • Simple • Easy • Dependable
Write for illustrated folder

Refrigeration ENGINEERING, INC.

7250 EAST SLAUSON AVENUE • LOS ANGELES 22, CALIFORNIA

Manufacturers of Air Conditioning and Commercial Refrigeration Equipment



TRADE MARK REG.

Wolkenheim leaves the position of Permaglas general sales manager to succeed Brinker in Milwaukee as director of marketing. **R. J. Shepherd**, who has been manager of water heater sales for the division, fills the post of general sales manager vacated by Wolkenheim.

•

Carl H. Willhoft has been appointed a sales engineer for Bush Mfg. Co. and Heat-X, Inc., covering San Francisco, northern California and Nevada, working out of the company's Riverside, Calif., plant.

Willhoft for 15 years was associated with California Refrigerator Co., managing the wholesaler's Oakland branch for 10 years and serving as general manager for three years.

•

William G. Smith has been named national service manager for the Union Asbestos & Rubber Co.'s air conditioning products. Prior to joining Unarco, Smith was district sales manager for the east-central division of Servel, Inc., at Evansville, Ind. He will make his headquarters at Unarco's Greenville, Ill., plant.



Cliff H. Hager has been appointed field sales representative in the east central territory for the commercial refrigeration division of Servel, Inc.



Hager has been a member of Servel's field service staff for the past two years. He has been doing service and sales work in the commercial refrigeration and air conditioning fields for 15 years. His territory will include parts of Indiana, Ohio, Pennsylvania, Kentucky, West Virginia, Michigan and New York. He succeeds William G. Smith, who resigned.

•

R. Wayne Miller has been named sales representative for the



Janitrol Heating and Air Conditioning Div. of Surface Combustion Corp. Miller will represent the Janitrol line of residential, commercial and industrial heating and cooling equipment in north central Ohio. His office will be at 717 Ash St., Willard, Ohio.

•

Thomas Sproule has been appointed manager-manufacturing of the General Electric Co.'s Home Heating and Cooling Dept. Sproule will be responsible for the department's manufacturing activities and



will have plant operating responsibility at G.E.'s recently announced Tyler, Tex. facility. The department also conducts manufacturing operations at its plants in Trenton,

N. J. and Bridgeport, Conn. Sproule will have his office at Bloomfield, N. J., present headquarters of the Home Heating and Cooling Dept., until the department's new Tyler headquarters are completed.

•

Harry H. Rowling has been named district manager for the Florida area by the Feeders - Quigan Corp. The appointment was announced by Robert E. Cassatt, sales manager, refrigeration appliance division.



Rowling's headquarters will be in Miami. Before joining the room air conditioner manufacturer, he was general sales manager for the Electrical & Mechanical Supply Co., El Paso, Tex.

•

Hans P. Peterson, former chief engineer of the Bush Mfg. Co., has joined the sales staff of Kramer Trenton Co.



He will cover the firm's North Jersey territory. From 1938 until 1947 Peterson served with Bush Mfg. Co. as chief engineer. In 1948 he joined the Cecil Boling Co. (now Bush Mfg. and Heat-X-Changer Inc.) as a representative for the Philadelphia territory, and in 1952 he resumed his duties as chief engineer for Bush.

•

Four new Winkler district sales managers have been signed by U. S. Machine Div. of Stewart-Warner Corp. **Edward W. Garrison** was assigned western Kentucky and parts of Tennessee and Missouri. **B. Robert Ozer** has taken over the Pittsburgh territory. **Robert B. Redman** has taken

over the Iowa territory. **Arley H. Kuhn** is serving northern Wisconsin and upper Michigan.

Elected to the new positions of executive vice presidents at The Trane Co. were: **R. James Trane**, who is also president of Trane's wholly-owned subsidiary, the Trane Co. of Canada, Ltd., at Toronto; **Wayne J. Hood**, who has been vice president and treasurer, and **Thomas J. Hancock**,

who has been vice president in charge of sales. **Richard H. Pearse, Sr.**, purchasing agent, was elected to the position of vice president.

James H. Montgomery has been appointed Midwest regional sales manager for United States Air Conditioning Corp. Montgomery, former sales-engineer for 9 years with Servel, Inc., will be in charge of packaged air condi-

tioning sales for six states, with headquarters in Chicago.

A. E. Ott has been appointed merchandising manager of Chel- sea Fan & Blower Co. He will act as assistant to the executive vice president, supervising activities in the fields of advertising, sales promotion, service and marketing. Ott formerly was associated with the Electric Motor Div. of the Hoover Co.



Jack Wanted Thorough Drying

JACK'S REFRIGERATION SERVICE
MARINE - COMMERCIAL - DOMESTIC
AIR CONDITIONING
1294 WEST PLATT STREET
TAMPA, FLORIDA

Higheide Chemicals Co.
10 Colfax Avenue
Clifton, New Jersey
gentlemen:

For many years I have had the problem of expansion valve failure in the field. Mostly due to existing moisture.

Continuously installing dehydrators and expansion valves began to get costly and monotonous. Some customers had a tendency to complain with so many calls being John. After leasing lots of business, I was introduced to Thawzone by a local jobber. After a few trials on some low temperature plants, I was 100% sold on Thawzone. It has helped me eliminate valve failure to the extent my regular customers seldom have a break down.

You can carry a bottle of Thawzone at all times. Consider it a necessity in the field.

Yours truly,
Jack Frye
Jack Frye

THERE IS NOTHING LIKE THAWZONE

- Actually destroys moisture...not a mere anti-freeze.
- Scavenges oxygen...the only product that eliminates this corrosion-causing chemical.
- Cannot cause pressure drop.
- Cannot clog with oil.
- Does not release moisture when temperature changes.
- May be used in open or hermetic units containing "Freon", methyl chloride, methylene chloride, or isobutane.
- Costs only about 8 cents per lb. of refrigerant treated. Used in small amounts.

Why not try out a 1 oz. bottle? Also available in 4 oz. and pint bottles. Contact your wholesaler. Higheide Chemicals Co., 4 Colfax Ave., Clifton, N.J.

THAWZONE®

The Only Product That DESTROYS Water
... and Reaches All of it

Circle No. 19 on Reader Service Card



CORROSION TEST

Both tubes contain 25cc of "Freon" 12, .025cc water, 4cc oil, and steel strips. Tube No. 3 also contains 1% Thawzone. Tube No. 27 contains 1% antifreeze instead of Thawzone. This unretouched photo shows how the metal protected by Thawzone remained free of corrosion.

Vince Reynolds has been appointed as an A-P sales representative in the A-P Dallas office to work with Bill Cody contacting the refrigeration and heating trade. Reynolds has been in the A-P Refrigeration Sales Dept. in Milwaukee for approximately three years. The territory covers Texas, Oklahoma, Louisiana and Arizona.

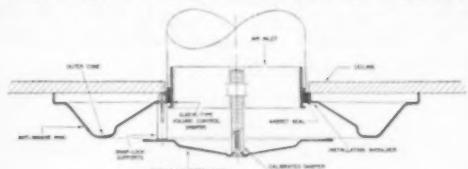


John G. Willison has been appointed industrial relations manager of the Sherer-Gillett Co. He joined Sherer-Gillett in 1928 as cost and payroll clerk and since 1941 has served as chief cost accountant and factory personnel manager, which duties he will retain.

Henry J. Couch has been appointed manager of the Chicago district office of Connor Engineering Corp. Prior to joining the Connor Corp. Couch was with the American Air Filter Co. for 18 years.

Continued on page 70

Inside Story of Air Diffusion for Commercial Air Conditioning



KNO-DRAFT Type ABC Air Diffusers are designed especially for commercial use. They embody the beauty and many of the engineering features of higher-priced diffusers and provide *draftless* air distribution even at low mounting heights.

Each step of a Kno-Draft installation is easy to make and quick to do. The exclusive Kno-Draft snap-lock assembly is a particular time-saver. And your jobs take less preliminary figuring because the Kno-Draft sleeve damper lets you adjust air volume *after* installation.

Kno-Draft Type ABC installations are highly efficient. Diffusers are automatically "tight" because a special neck-mounted rubber gasket prevents air leakage. And the integral anti-smudge cone—which assures clean operation—is another big selling advantage.

For full details on Kno-Draft Type ABC Air Diffusers for commercial use, send for a copy of Bulletin K-34. Connor Engineering Corporation, Danbury, Connecticut.

CONNOR

kno·draft®

type ABC air diffusers

**CONNOR ENGINEERING CORP.
Dept. C-65, Danbury, Connecticut**

Please send Bulletin K-34 describing Kno-Draft Type ABC Air Diffusers for commercial installations.

Name _____

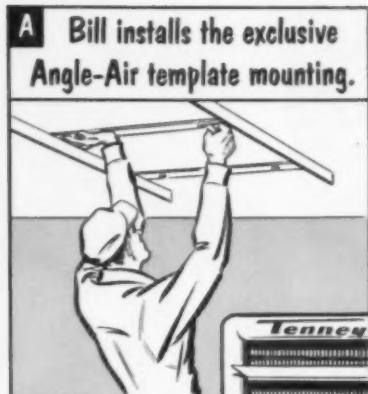
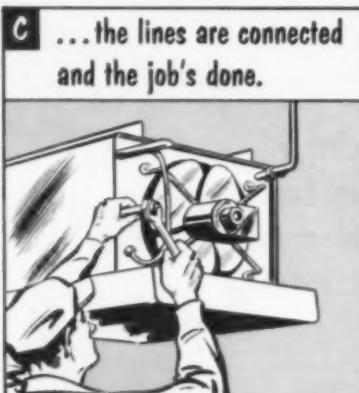
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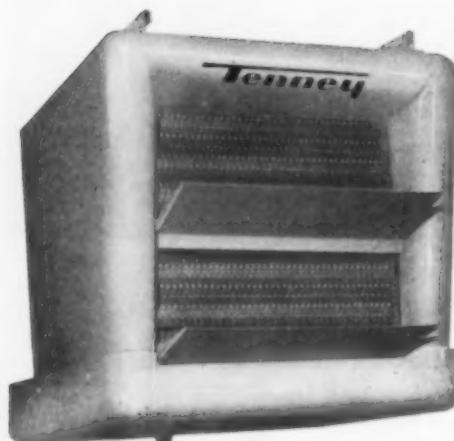
Zone _____ State _____

see our catalog in
ARCHITECTURE FILE
or write for copy

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Easy-to-install and easy-to-service



are the key words to describe the new Tenney Angle-Air unit coolers... destined to become *your* favorite coolers for *every* refrigeration job.

This exclusive, ultra-modern design by Tenney is available in a selection of capacities from 2,600 to 54,000 B.T.U.; it has an integral heat exchanger with sensitive aluminum Facetized* fins mechanically bonded on scale-free electro-tin-plated copper tube. A special provision is made for easy expansion valve bulb location... adjustable louvers... vibration mounted motor. Units are "Engineered" for dependable operation.

For full technical data on Angle-Air unit coolers, write department CR-6 for Bulletin 109-55 today!

*Patented

Tenney ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, N. J.

Plants: Union, N. J. and Baltimore, Md.

ENGINEERS AND MANUFACTURERS OF REFRIGERATION AND ENVIRONMENTAL EQUIPMENT

Circle No. 21 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

HENRY

LINE VALVES really give you something extra

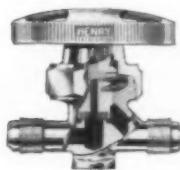
They give more dependable service because
of advanced field-proven design and
construction as well as patented features.

PACKLESS VALVES FOR FREON with Exclusive Balanced-Action



STANDARD TYPE

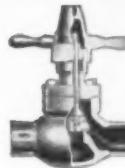
Ball check in balancing channel permits diaphragm inspection and replacement with valves under line pressure. Sizes $\frac{1}{4}$ " thru $\frac{5}{8}$ " flare; $\frac{1}{4}$ " thru $1\frac{1}{2}$ " O.D. Solder, $\frac{1}{4}$ " thru $\frac{1}{2}$ " F.P.T.



BLUE BANTAM TYPE

Same as standard Balanced-Action valve except that diaphragms cannot be inspected or replaced under line pressure. Size $\frac{1}{4}$ " thru $\frac{5}{8}$ " flare and O.D. Solder.

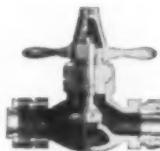
PACKED VALVES FOR FREON Bronze-Wing Cap Type



Globe and angle types with solder connections, bolted bonnets, sizes $\frac{1}{2}$ " thru $4\frac{1}{2}$ " O.D.

SEMI-STEEL WING CAP TYPE

With bolted bonnets, complete with companion flanges. Available in globe and angle types in sizes $1\frac{1}{4}$ " thru 6 ". Can be furnished with separate forged brass O.D.S. adapters, or separate steel butt weld adapters. Valves are also supplied with one piece forged steel flanges with F.P.T. connections or slip-on welding connections. Also Globe and angle types with F.P.T. connections, sizes $\frac{1}{2}$ " thru $2\frac{1}{2}$ ".



PACKED VALVES FOR AMMONIA Permanent-Mold Iron and Semi-Steel



Compact and strong with self-aligning stem disc. Sizes (F.P.T.), screw bonnet: $\frac{1}{4}$ " thru 1 ", bolted bonnet $1\frac{1}{4}$ " thru $2\frac{1}{2}$ "—with flange connections $1\frac{1}{4}$ " thru 6 "—both flange and angle types.



HENRY—Standard equipment by leading Manufacturers, Army, Navy,
Coast Guard and Maritime Commission • Stocked by Leading Jobbers
WRITE FOR CATALOGS

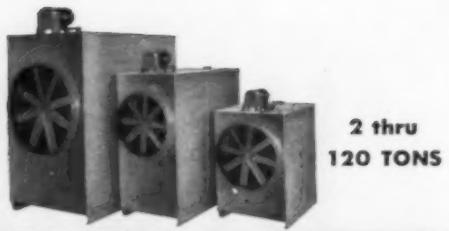
HENRY VALVE CO.



Valves—Driers—Strainers—Control Devices and Accessories for
Refrigeration, Air Conditioning and Industrial Applications

MELROSE PARK, ILL. (CHICAGO SUBURB)
CABLE: HEVALCO, MELROSE PARK, ILLINOIS

HALSTEAD & MITCHELL
COOLING TOWERS



Protected Steel

adds new years of life!

Steel in cooling towers undergoes constant corrosive attack by both water and water-treatment chemicals. Halstead & Mitchell combats this rusting . . . adds years to cooling tower life . . . by Protected Steel, a new concept in steel protection. Protected

Steel is not simply a treatment, but a whole new approach to the problem of steel subjected to constant exposure to water. Halstead & Mitchell provides this added value in cooling tower construction . . . to give you added protection.

TRIPLE-THREAT PROTECTION

Not one, but three individual finishes coat every Halstead & Mitchell sheet steel cabinet. Vinsynite phosphates the metal, providing *maximum* protection against corrosion. Vinyl Zinc adheres tightly to the Vinsynite . . . is tough, flexible, inert . . . and provides high resistance to moisture vapor. Chlorin-

ated rubber . . . tough and water resistant . . . provides film thickness, of vital importance in combating water immersion and high humidity. Applied *hydraulically* to force these protections into every conceivable opening, they provide the most satisfactory cooling tower steel protection ever developed.

STAINLESS STEEL FANS, SHAFTS

Halstead & Mitchell cooling tower fans and shafts are Stainless Steel. Rust-proof, of course.

EVERDUR BOLTS

For ease of disassembly after years of operation, H & M uses Everdur Bolts in all cooling towers.

Want More Details? Then Write for Catalogs or Visit Your Nearest Leading Wholesaler

EXCLUSIVE 20-Year Guarantee!

on the wetted deck surface against rotting or fungus attack

Only Halstead & Mitchell pressure-creosotes all wood used in its cooling towers, to provide the most satisfactory protection known against rotting, fungus attack, and corrosives in cooling water. That's why you get the "20-Year Guarantee" only from H & M.

HM
Halstead & Mitchell

BESSEMER BUILDING • PITTSBURGH 22, PA.

Circle No. 23 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

PORTABLE SERVICE STATION

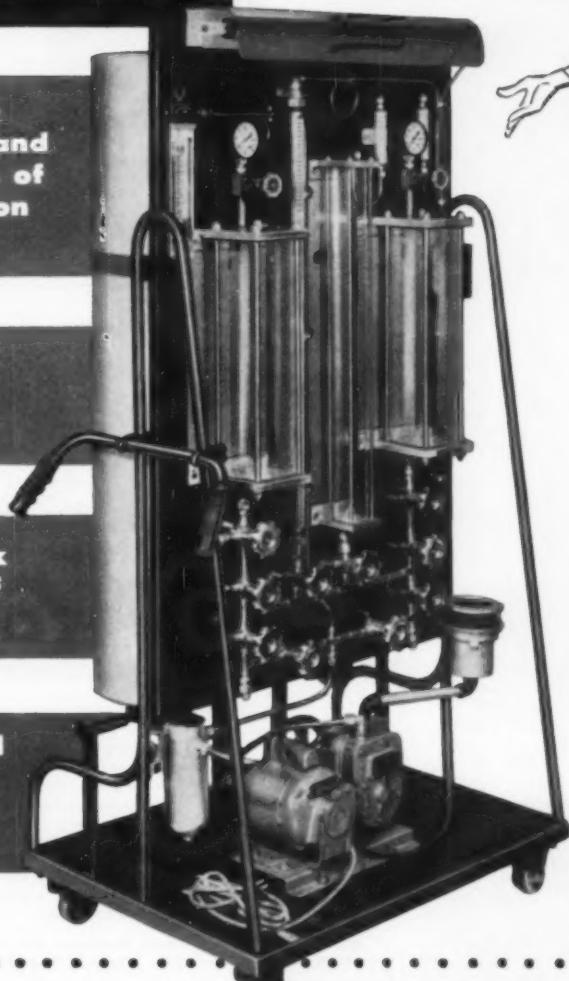
Adequate
evacuation and
dehydration of
refrigeration
units

Precision
visual
charging

Quick leak
testing of
units

Flexible and
reliable
quality
control

here's a potent package for
degassing and precision
charging refrigeration and
air conditioning units!



This Portable Service Station permits the service shop to duplicate specifications as originally attained in production of the unit being serviced. Since it is an entirely self-contained system . . . simple and compact . . . it eliminates the cost of installing a charging board and vacuum pump. Also, of great importance in making efficient use of servicing time, it assures proper and leakproof design of the charging and vacuum manifold.

Send coupon today for further information, or consult the competent vacuum specialists in our district offices—in Boston, New York, Philadelphia, Cleveland, Chicago, and Los Angeles. Inventory and shop facilities are available at Los Angeles.

KINNEY MFG. DIVISION
THE NEW YORK AIR BRAKE COMPANY
3618 WASHINGTON STREET • BOSTON 30 • MASS.



Please send Brochure covering Kinney Portable Service Station and accessory items.

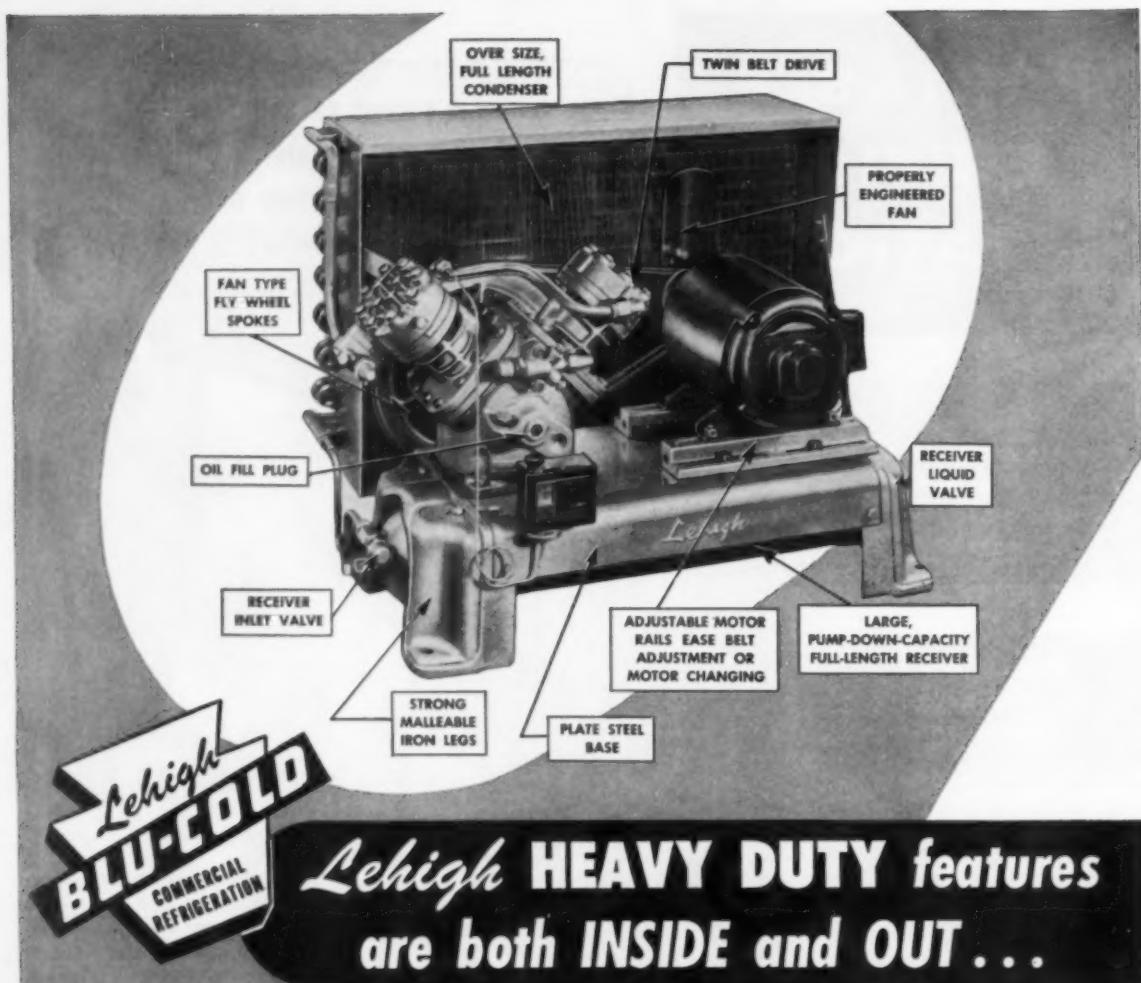
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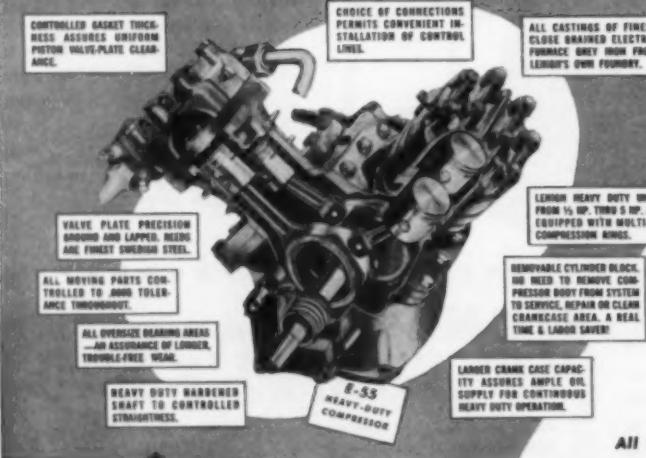
City _____ State _____

Circle No. 11 on Reader Service Card



Lehigh
BLU-COLD
COMMERCIAL
REFRIGERATION

Lehigh HEAVY DUTY features are both INSIDE and OUT...



Lehigh HEAVY-DUTY construction goes much further than rugged pump design. EXTRA CAPACITY is assured by such specifically engineered features as over-size condensers, full-length receivers, fan-type fly wheel spokes and properly designed fans. Servicing is simplified by conveniently located plugs, valves and control connections. Removable cylinder blocks save time and labor in crankcase area servicing. Motor changing and belt adjustment are expedited by adjustable motor rails.

These features are characteristic of all Lehigh HEAVY-DUTY UNITS

**1/3 thru 5 H.P.
AIR-COOLED — WATER-COOLED
COMBINATION AIR-WATER COOLED**

... for every HEAVY-DUTY purpose — commercial, industrial, refrigerated transportation. Write for latest catalogs.

All BTU CAPACITIES determined by ASRE STANDARDS

Lehigh **BLU-COLD**

Expert Dept.
13 E. 40th St., N.Y.

Manufacturers of Malleable and Grey Iron Castings, Refrigerating Equipment, Air Valves, Automatic Vending Machines

**CONDENSING UNITS
and SYSTEMS**

DIVISION OF
LEHIGH FOUNDRIES, INC.

Circle No. 25 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

The Stearns-Roger Building, home office of the firm at Denver, Colorado, designed, engineered, and constructed by Stearns-Roger with Mr. J. Roger Musick as consulting architect.



Air Conditioning in the mile high city . . .

and Ingersoll-Rand Centrifugal Pumps play their part . . .

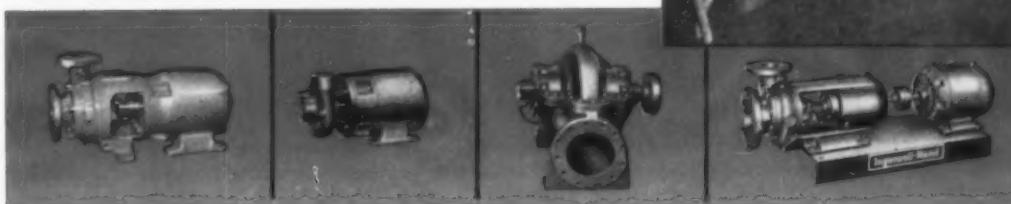
Installations such as this are becoming the rule rather than the exception these days. Even in the cooler areas of the country, office buildings, theatres, shopping centers, restaurants, hotels, hospitals, etc. are catering to the comfort of their employees and customers with central system air conditioning.

Ingersoll-Rand Centrifugal Pumps from $\frac{1}{4}$ horsepower up are ideal for cooling tower or chilled water service anywhere. These dependable pumps help give indoor comfort day in and day out with minimum maintenance and maximum efficiency.

When you are working on an air conditioning job check Ingersoll-Rand Circulating Pumps to do a bonus job for you. In the meantime, write for full information on I-R pumps for air conditioning service. Remember, the job is never too small nor too large for the Ingersoll-Rand Line.

Ingersoll-Rand

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Circle No. 26 on Reader Service Card

Here's how

STYROFOAM
compares
to other
insulations



low "K" factor

**superior
water resistance**

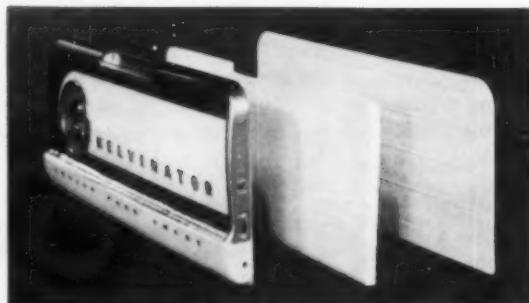
**excellent
compressive strength**

STYROFOAM	✓ Permanently Low. Avg. 0.25	✓ Remains Dry and As- sures Constant "K" Factor	✓ Highest Strength- Weight Ratio of Any Insulation
INSULATION A		✓	✓
INSULATION B	✓		
INSULATION C	✓		✓

STYROFOAM

Kelvinator chooses STYROFOAM® for its permanent low "K" factor

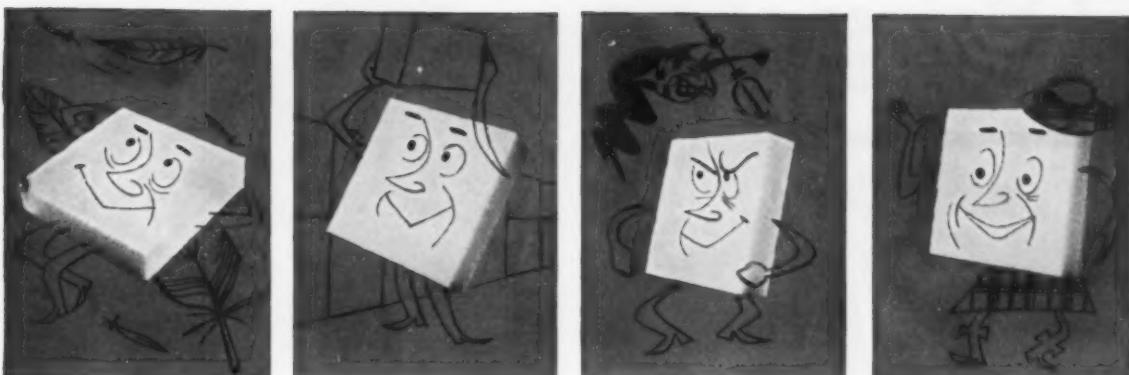
Kelvinator Division of American Motors Corporation needed an insulation with long service life for the freezer compartment of their refrigerator. The permanent low "K" factor and superior water resistance of Styrofoam (Dow expanded polystyrene) made it the perfect answer. Installation is quick and economical because of Styrofoam's ease of formability and handling.



The evaporator door assembly of the 1954 Kelvinator refrigerator. Styrofoam is used between the front and back plates which are made of Styron 475. The Kelvinator refrigerator also uses Styrofoam in the baffle plate assembly.

THESE ARE JUST A FEW LEADING COMPANIES THAT HAVE CHOSEN STYROFOAM

The Best Foods, Inc.; The Goebel Brewing Co.; Southern Dairies, Inc.; General American Transportation Corporation; General Electric Company; Norge, Division of Borg-Warner Corporation; Kelvinator Division of American Motors Corporation; New York Central System; Swift and Company; Oscar Mayer and Company.



light weight	ease of handling	superior resistance to vermin and decay	low installation cost
✓ Lightest Of All Rigid Insulations. Avg. Density, 1.7 lbs. per cu. ft.	✓ Pleasant—Fabricates Easily with Common Tools. Doesn't Crumble	✓ Has No Food Value	✓ Lowest Cost, Too, Per Year of Service
		✓	✓
✓			✓
			✓

...the most nearly perfect low-temperature insulation ever developed

No other insulating material can match its unique combination of properties

Dow will send you further information on Styrofoam, free, upon request. Please specify if you want general information on Styrofoam or detailed information on its use in low-temperature work, as a perimeter insulation, or pipe covering. Write Dow Plastics Sales Dept. PL577C. THE DOW CHEMICAL COMPANY, Midland, Michigan, or contact your Styrofoam distributor: *The Putnam Organization, Inc., Chicago, Ill.* • *Seward-Kauffman Corp., Elkhart, Ind.* • *Styro Products, Inc., Kansas City, Kansas* • *Atlantic Foam Products Co., Ipswich, Mass.* • *Par-Foam, Inc., Detroit, Michigan* • *Edwards Sales Corp., Minneapolis, Minn.* • *Floral Foam Products, Midland, Michigan* • *Styro Sales Co., New York City* • *William Summerhays Sons Corp., Rochester, N. Y.* • *G. & W. H. Corson, Inc., Plymouth Meeting, Penn.* • *The Emerson Co., Houston, Texas* • *Utah Lumber Co., Salt Lake City, Utah* • *S & S Sales Corp., Milwaukee, Wis.*



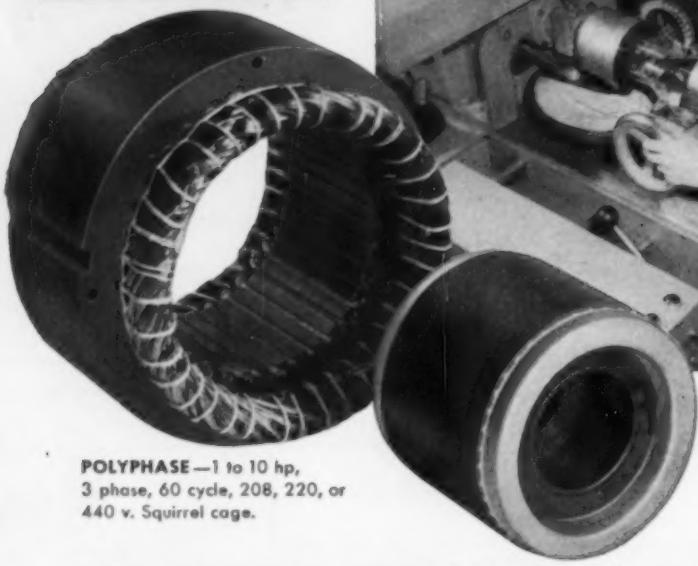
you can depend on DOW PLASTICS

DOW

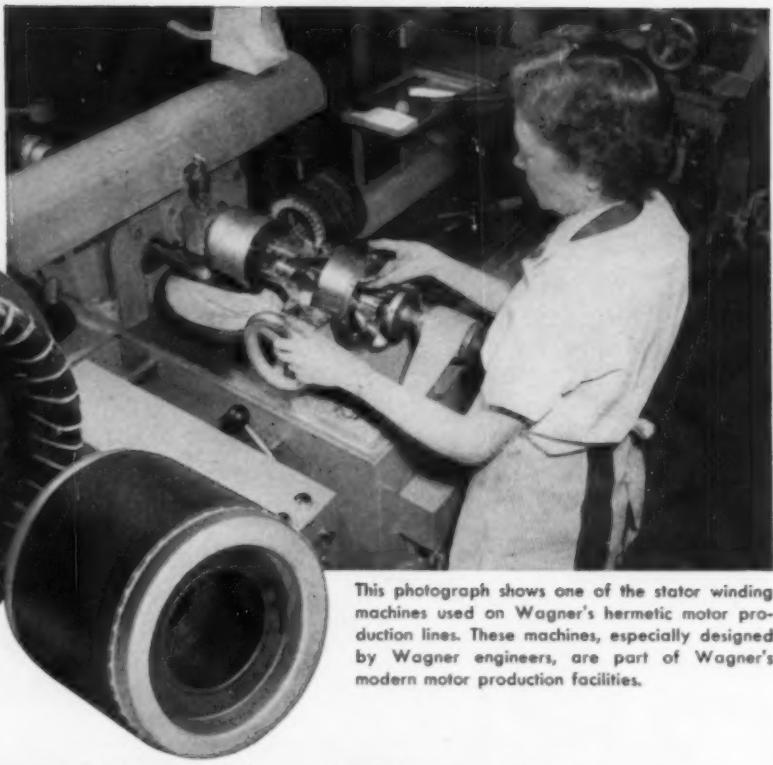
Circle No. 27 on Reader Service Card

Wagner®

ELECTRIC MOTORS
...the choice of leaders
in Industry



POLYPHASE—1 to 10 hp,
3 phase, 60 cycle, 208, 220, or
440 v. Squirrel cage.



This photograph shows one of the stator winding machines used on Wagner's hermetic motor production lines. These machines, especially designed by Wagner engineers, are part of Wagner's modern motor production facilities.

Wagner Hermetic Motors...built to give you better sealed-unit performance



SINGLE-PHASE

½ to 5 hp, 60 cycle,
115 or 230 v. Split-Phase,
Capacitor-start induction run,
Capacitor-start and run.



When you design or build a refrigeration condensing unit that is to be hermetically sealed—choose your motor drive with care. Remember, it's your product that the user blames if the motor fails. But, if you use a Wagner motor, our reputation is at stake, too. For that reason, we can't be satisfied to make just another hermetic motor . . . we can't be satisfied to merely meet industry standards.

That's why only the newest and best production tools available anywhere are used on Wagner's

hermetic motor assembly lines.

That's why repetitive surge tests and dielectric tests are given to every Wagner hermetic motor stator. And that's why every rotor that goes into a Wagner hermetic motor is given an individual speed test. It's this exacting kind of quality control that contributes to the long service life of each Wagner hermetic motor.

When your motor drives are to be hermetically sealed, it's to your advantage to specify *Wagner* for use on your equipment. Get the facts . . . call the nearest of our 32 branch offices, or write us.

Wagner Electric Corporation
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

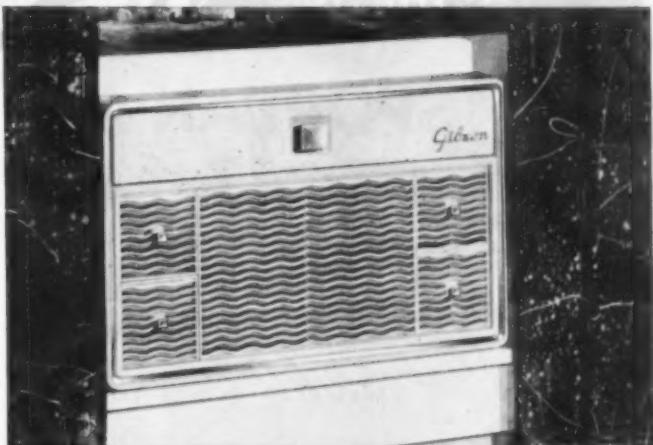
Gibson

best air conditioners under the sun!

**STYLED TO SELL!
PRICED FOR PROFIT!**

Gibson's got what dealers want for 1955! Take room air conditioners, for instance—Gibson has $\frac{3}{4}$, 1, and $1\frac{1}{2}$ H.P. models, standard and deluxe, the size and style your customers want! And Gibson is loaded with features that you can sell—multi-mount installation that permits flush mounting or any desired interior projection...Electro-static Dust Magnet Filter...draft-free circulation...push-button controls...Gib-Sun-Air Ozone Lamp...Super Heat'r unit for cool days!

And so that you have a complete air conditioning line, Gibson now introduces the self-contained air conditioner shown below, available in 2, 3 and 5 ton capacities for residential or commercial installations! Clip the coupon, and find out about the profits you can make with Gibson air conditioners!



These Gibson features make sales!

Push-Button Control! For circulation speed, cooling, or heating.

Gib-Sun-Air Ozone Lamp! Purifies room air. Removes stale odors.

Draft-Free Circulation! Adjustable twin louvers.

Thermostat! Automatically controls cooling.

Electro-Static Dust Magnet Filter! Permanent, easy to clean.

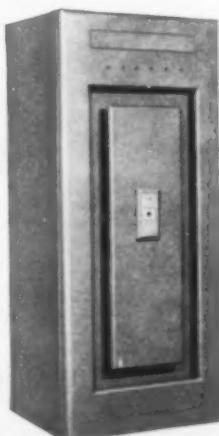
No Rust Stains! Galvanized steel cabinet, protected by 2 coats of enamel.

GIBSON REFRIGERATOR COMPANY • GREENVILLE, MICHIGAN
Manufacturers of Refrigerators • Electric Ranges • Food Freezers • Air Conditioners
78 years of experience and millions of satisfied customers mean you can always rely on Gibson!

NEW!

Gibson Self-Contained Air Conditioners

- Water Cooled Condenser
- Capillary Refrigerant Control
- Unusually Quiet Operation
- Package-Type System for Easy Servicing
- Adjustable Air Vents
- Convenient Controls & Duct Connections
- Corrosion and Rust-Proofed
- Excess Humidity Removal with no Over-Cooling Danger
- Modern, Compact, Easily Installed



Clip the coupon, send for all the facts!

GIBSON REFRIGERATOR COMPANY
Greenville, Michigan

* Please rush full facts on
Gibson Air Conditioners.

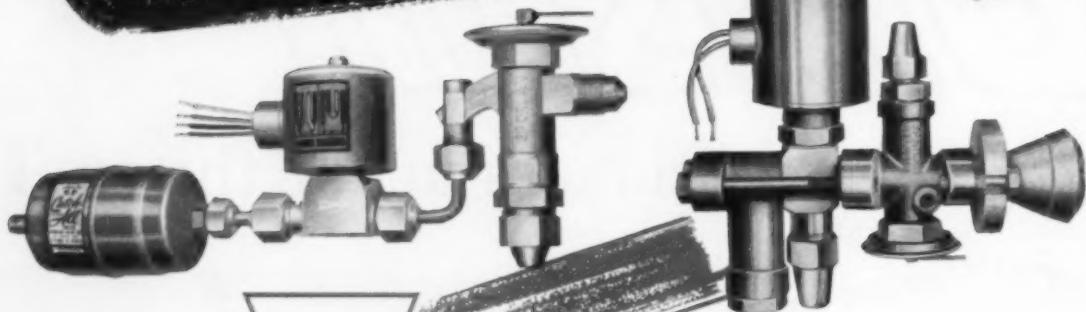
Name _____

Firm _____

Address _____

City _____ State _____

*Right down the Line
Peak Performance doesn't
Just Happen!*



SPORLAN

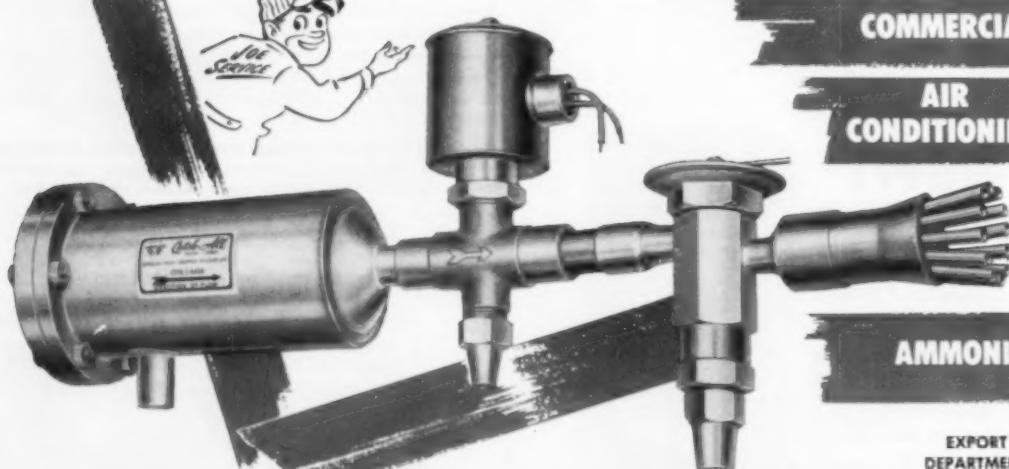


Catch-All filter driers, Solenoid Valves
Thermostatic Expansion Valves and

Refrigerant Distributors alone can give you

the perfect hook up for any size installation

That is why when you buy SPORLAN throughout you
know you'll get Right-down the Line Peak Performance
on all Refrigeration Systems . . .



COMMERCIAL

**AIR
CONDITIONING**

AMMONIA

EXPORT
DEPARTMENT
89 BROAD ST.
NEW YORK 4, N.Y.

SPORLAN VALVE COMPANY
7525 SUSSEX AVENUE ST. LOUIS 17, MO.

Circle No. 30 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

**NEW
UNIFLOW WATER
COOLERS . . .**

NOW IN BEAUTIFUL PEARLTONE
GREY WITH YOUR CHOICE OF 6 TOPS
COLOR KEYED TO
YOUR PROSPECT!

EYE APPEALING
COLORS.. AT NO
EXTRA COST!



PEER BLUE



WHITE



SPRUCE GREEN



BURGUNDY



BLACK



GREY

Featuring FOOT PEDAL
CONTROL

FREE Full COLOR

BROCHURE . . . of the
new COMPLETE line of
Uniflow Water Coolers.



UNIFLOW . . . a pioneer builder of water coolers
for over 24 years . . .

UNIFLOW MANUFACTURING COMPANY
EAST LAKE ROAD, ERIE, PENNSYLVANIA

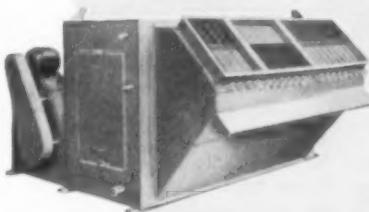
Circle No. 32 on Reader Service Card
& AIR CONDITIONING • JUNE, 1955

the **BROADWAY'S**
having twins!
.....



**drayer-hanson's
A PROUD PAPA...**

A downtown L. A. department store giant,
Broadway-Hale, Inc., gearing for
the zooming suburban market, is building
two branch beauties, simultaneously –
The Broadway Valley, The Broadway Anaheim.
The twins are identical!
Only thing that varies is the name.



PART OF THE
d-h TEAM!
FLEXAZONE

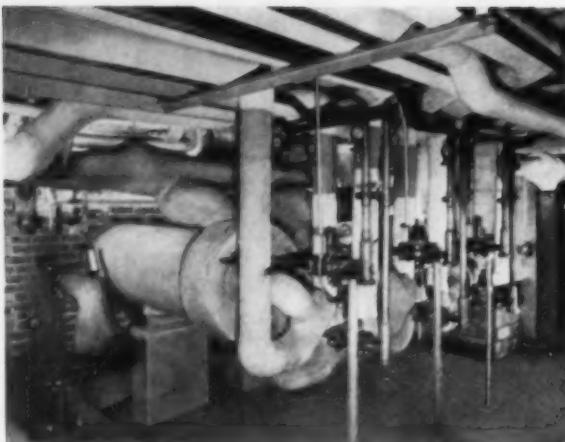
AND, both
will be air
conditioned
for year-round
comfort by
Drayer-Hanson's
popular heavy
air-handling units –
Flexazone's and HH's.
Over 521,000 cfm's in all!
Look at the "extras" . . .
Electrically-welded angle-iron frame
construction, vinyl-coated glass
fibre insulation . . . and more. Details?
Request bulletins C-4.20, C-4.22.A.



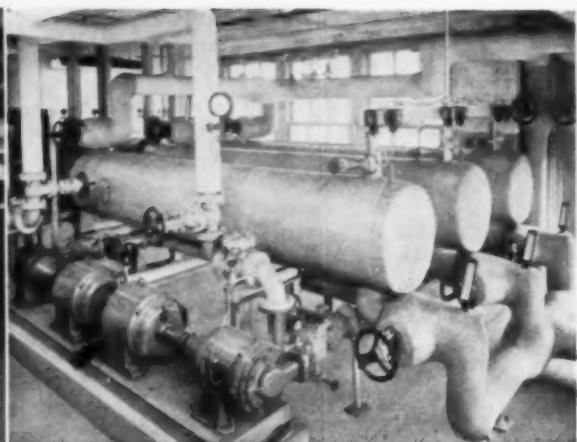
drayer-hanson
INCORPORATED

3301 MEDFORD STREET, LOS ANGELES 63, CALIFORNIA
(A SUBSIDIARY OF NATIONAL-U.S. RADIATOR CORPORATION)

Circle No. 31 on Reader Service Card



These three p-k Freon coolers, located in the basement, protrude through brick wall to save space.



Fifth floor installation shown here conditions upper floors. Third floor chillers serve cooling tunnels.

for perfect candy kitchen weather

LOFT'S USES p-k COOLERS

Schwerin Air Conditioning Corp. specified Chrysler Airtemp Units with p-k chillers to keep Loft's 8-story Long Island candy kitchen at just the right temperature and humidity for candy perfection.

You've seen soft, sticky, unappetizing candy you wouldn't want to eat. But you won't see it at Loft's. This big Eastern candy manufacturer has an unusual ability for maintaining the highest standards of quality 'buy-appeal'. And one important reason is its thorough-going air conditioning system employing Chrysler Airtemp units and six p-k dry expansion Freon coolers, engineered and installed by Schwerin Air Conditioning Corp., New York.

At Loft's both humidity and temperature must be rigidly controlled, for when humidity gets out of hand, candy is unsaleable.

So the reheating principle is used to cool the air, and "wring" it to the proper humidity. "Two-circuit" type p-k Freon coolers which chill a glycol solution are located in the basement and the third and fifth floors, to serve nearby areas. Air from conditioned areas passes around

coils chilled by the glycol solution and air temperature is reduced some 25°F. to 43°F. A water spray cleans the air, and increases its humidity to 97%. Then the air is circulated around heating coils where its temperature is raised to 60°F. and humidity reduced to 51%—just the right "weather" for perfect candy-making.

The six p-k Freon coolers are automatically controlled; operation is simple. Because the coolers are enclosed, the Loft system is a *clean* system. Compact p-k Freon coolers require minimum floor space, minimum insulation.

If you, like Loft's, have a tough "indoor weather" problem, p-k heat exchange specialists would be glad to assist. More than likely they'll have answers to your particular questions. Write today for illustrated literature and engineering suggestions.

The Patterson-Kelley Co., Inc., 360 Burson Street, East Stroudsburg, Pa.

PATTERSON-KELLEY

2545

Offices: 101 Park Avenue, New York 17 • Railway Exchange Building, Chicago 4 • 1700 Walnut Street, Philadelphia 3 • 96-A Huntington Avenue, Boston 16 • and other principal cities

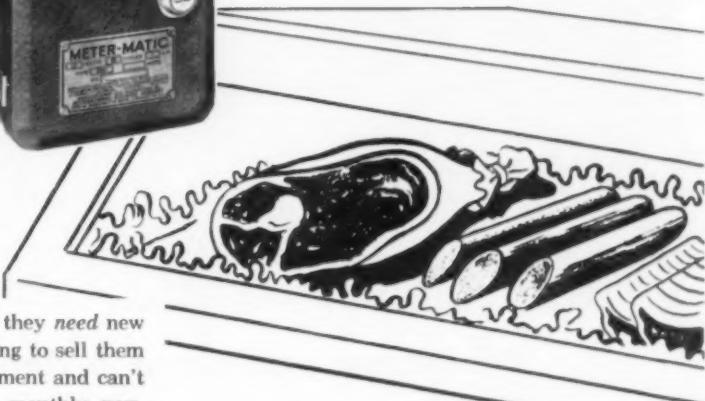
Circle No. 33 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

The most powerful sales-clincher ever devised



custom made for the
man who says...
*"I can't afford
new refrigeration"*



It's easy to convince your prospects they *need* new refrigeration . . . but it's another thing to sell them when they don't have the down payment and can't see how they can accumulate the monthly payments. That's where a METER-MATIC coin meter will step in and *close the sale*.

Your customer puts just a few quarters a day in the coin meter . . . right from the till the way he's accustomed to pay his other suppliers . . . and he's got his refrigeration, and you've got your customers. You can sell safely with no money down, except the installation charge.

METER-MATIC
COIN METER
REFRIGERATION SALES PLAN

GET THE COMPLETE STORY

- FULL DETAILS . . . Specifications, prices, etc.
- METER PLAN BROCHURE . . . to help you sell
- FREE SELF-MAILERS . . . for mailing to prospects

MAIL THIS COUPON NOW!

INTERNATIONAL REGISTER COMPANY

2622 W. Washington Blvd., Chicago 12, Illinois

Please send me Meter-Matic Sales Kit No. 65Mm.
supply of 25 self-mailers for mailing to my prospects.

Be sure to include a free

Company _____

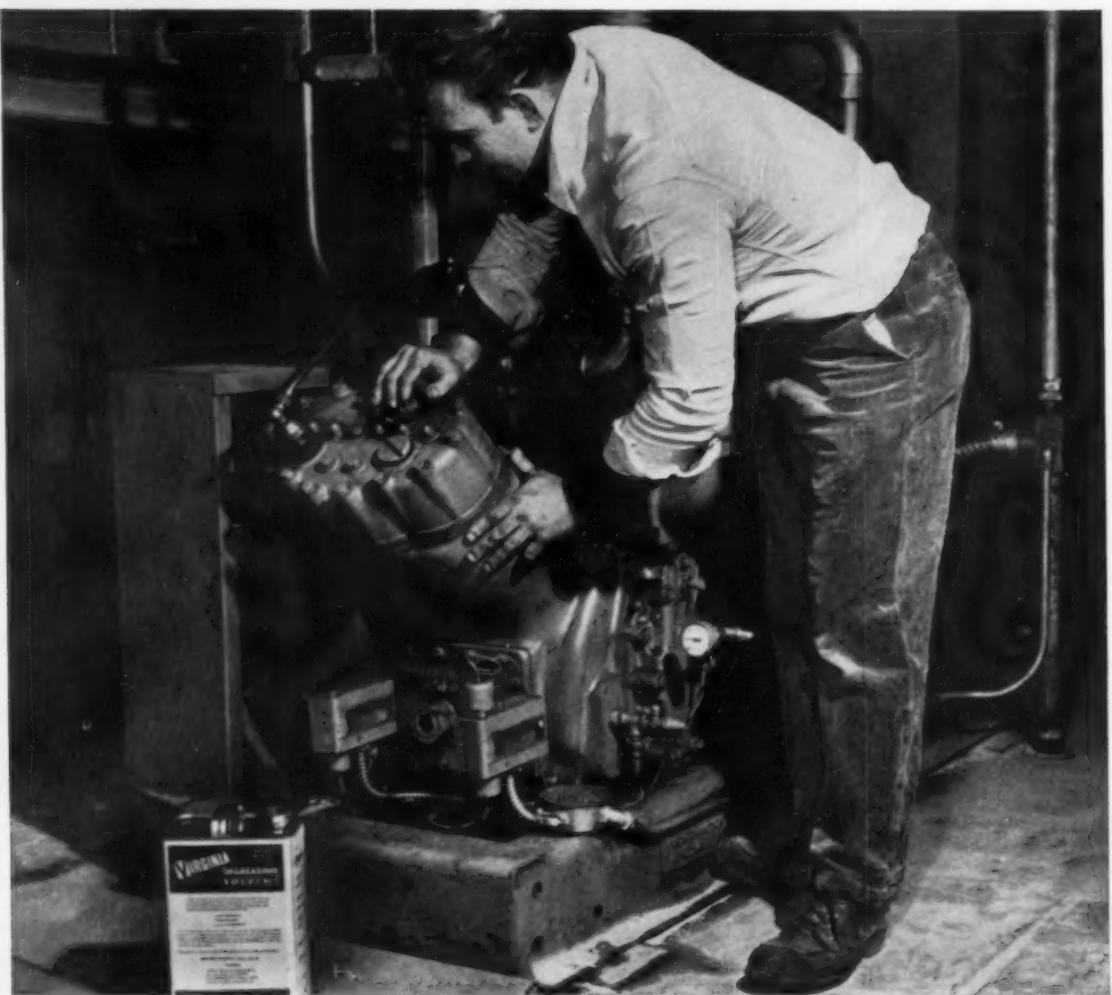
My Name _____

Address _____

City _____

Zone _____ State _____

Circle No. 34 on Reader Service Card



Whatever you want a degreaser to do Virginia No. 10 does—better

Virginia No. 10 is the trade name for a new type of degreasing solvent made expressly for refrigeration, electrical and automotive use. Virginia No. 10 removes oil, grease and grease-bound dirt in no time flat. Even more important, it can be used with comparative safety. You can stand a concentration of 200 parts per million for hours without harm—it's only about $\frac{1}{8}$ as toxic as carbon "tet"—flammability hazard is low.

In addition to very good drying properties, Virginia No. 10 is noncorrosive and, unlike some solvents, will not cause machined parts to rust. Nor will it attack

electrical insulation or leave any current-carrying residue. Virginia No. 10 is available in 1-gallon factory-filled cans from your favorite wholesaler. Or write Refrigeration Division, VIRGINIA SMELTING CO., Dept. 64, West Norfolk, Va.

VIRGINIA *Chemicals*

ESOTOOL • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • V-METH-L • CAN-O-GAS
PERMAGUAR • PRESSTITE TAPE • SUNISO REFRIGERATION OILS
Available in Canada and many other countries



Only about $\frac{1}{8}$ as toxic as carbon "tet."



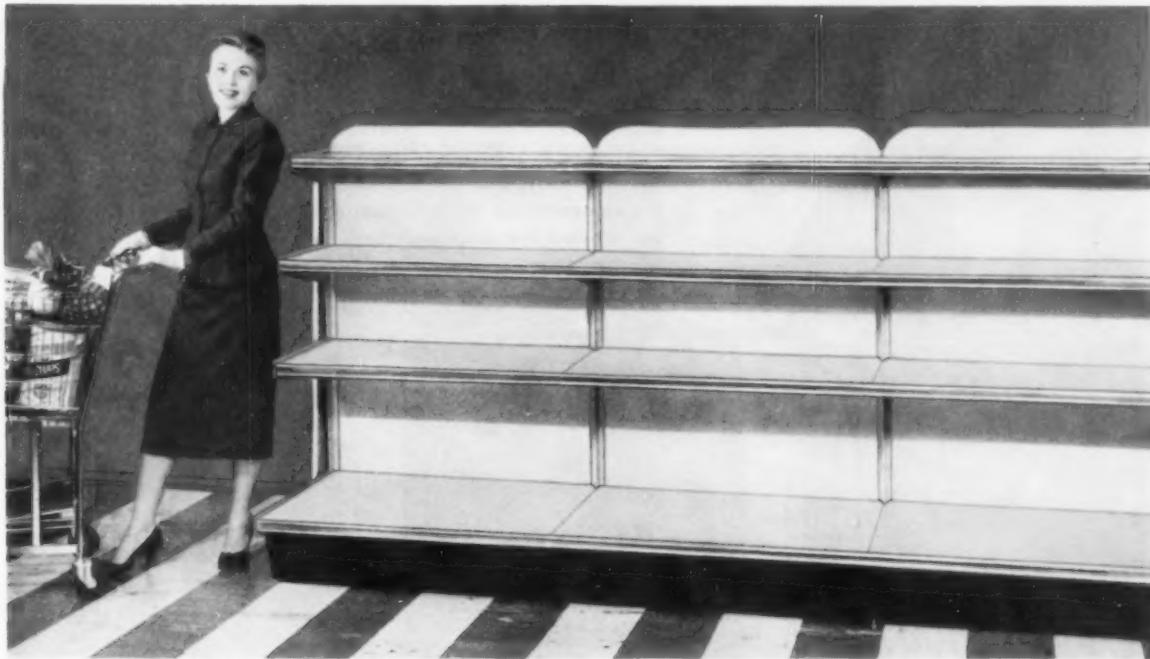
Virginia No. 10 is perfect for electrical parts.



Does not readily burn—low flammability hazard.

Here's why grocers buy Showline self-service shelving...

Grocers buy Hirsh Showline Shelving because it moves merchandise into market baskets at a faster clip than any other shelving made today. They buy it because it has streamlined modern design, super-strong steel construction, beautiful Hirshwood shelves, huge capacity, push-button shelf adjustability, built in levelers, comes complete, and costs far less than you'd expect for such quality!



...and here's why you should sell it to them!



ACT NOW!
*...mail the coupon
for complete information!*

made by



**the people who know
self-service best!**

When you sell Showline, in addition to refrigerated fixtures, you gain the competitive advantage of being able to submit complete bids. You make larger and more profitable sales to each store you contact. You establish the kind of customer satisfaction that helps bring in new business. Showline, in short, is one of the best things that can happen to your business, because it increases both your profits and your prestige. And best of all, Showline is easy to sell because it's known, preferred, and pre-sold through national trade advertising.

**DEALERS! A FEW PROTECTED TERRITORIES ARE STILL AVAILABLE.
WRITE FOR DETAILS!**

S. A. HIRSH MFG. CO.

CR-6

8051 Central Park Avenue, Skokie, Illinois

Gentlemen: Please send me complete information about selling Hirsh Showline Shelving.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

WORTHINGTON DEALERS ARE SUCCESSFUL DEALERS!



"Signing up with Worthington was a good move"

... says Richard H. Catlett, President of the Catlett-Johnson Corporation, Virginia's leading air conditioning and refrigeration dealers. Mr. Catlett goes on: "In the eight years we've had the Worthington franchise, our dollar volume has more than doubled. Previously, we were identified with another nationally advertised brand. The decision to change was not easy, but the results have been very gratifying. We've expanded our business as a result of Worthington's unrestricted franchise and complete range of products. And Worthington is one outfit that never competes with its dealers."



RALPH E. ORCUTT, CATLETT-JOHNSON'S SALES MANAGER SAYS: "Worthington promotion material is second to none — it helps us do a bang-up job. I'm enthusiastic about the way the Worthington people — and the sales aids they create — help us locate prospects . . . and turn them into sales. Worthington's staff of merchandising experts have given us a big hand in the development of a sound dealer program. And Worthington's national reputation helps a lot."



JOHN C. HILDEBRAND, JR., VICE PRESIDENT & CHIEF ENGINEER, SAYS: "The fact that I can rely on Worthington's published engineering data and ratings saves me many hours of engineering time. And Worthington's complete line of equipment allows me to select the units I know will be best for the job. Reciprocating and central station systems, year-round residential units, packaged air conditioners, add-ons — Worthington's got everything!"



J. TABB MEYER, JR., OPERATIONS MANAGER, SAYS: "Worthington units are extremely compact, well-designed, and easy to install almost anywhere. You can see the equipment is built with the serviceman in mind — easy accessibility cuts down our maintenance and service time. And Worthington's million-dollar compressor just can't be beat for day-in, day-out reliability. On the off-chance that something may go wrong, Worthington's five-year warranty takes care of it."

Catlett-Johnson's story — like so many others we've received — adds up to this: Worthington dealers are *successful* dealers. And there are plenty more reasons why. Lots of them are mentioned in Worthington's new monthly publication, "The Merchandiser". Write for it today. Worthington Corporation, Air Conditioning and Refrigeration Division, Section A.5.37-C, Harrison, N.J.

A.5.37

WORTHINGTON



THE BEST FRANCHISE . . . THE MOST COMPLETE LINE

Circle No. 37 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

Try an AMPROBE on the job for 2 weeks **FREE**



The first time you try it, you'll discover just how useful the Amprobe snap-around volt-ammeter can be—and how much easier it makes your job!

We want you to put the Amprobe to the toughest test of all—use it at *your particular job*. See how this one accurate pocket tester meets *all* your testing needs—measuring voltage and current instantly without shutting down equipment. You'll find the Amprobe worth its weight in gold when it comes to eliminating guesswork. And the Amprobe is invaluable in assuring a correct installation of equipment, in better servicing, and in reducing complaints. Test it *free*—see how much time, money, work it saves!

For your FREE two week trial, choose any Amprobe model that fits your needs. If you find the Amprobe doesn't pay for itself any time during the trial period, on job after job, just return it without obligation. The final decision is yours to make—you've got everything to gain and nothing to lose.

Fill out the "Free Trial" form today—we'll arrange for your local jobber to supply you with the Amprobe of your choice. Then take two weeks to show *yourself* how this pocket-sized instrument cuts costs, helps you do a better job in less time. Take advantage of this limited offer today. Don't delay—mail the "Trial Application" coupon now.



AMPROBE "300"

The ideal Amprobe model for general all-around work. Covers 6 ammeter ranges up to 300 amps, and 3 volt-meter ranges up to 600 Volts AC. The tapered probe jaws are perfect for "hard-to-get-at" wires in crowded switch boxes. Comes with test leads and top grain cowhide leather case.



AMPROBE "600 & 1200"

Same multi-range type of unit as the Amprobe "300", but designed to handle extra heavy loads—up to 600 amps and 1200 amps AC. Conductor doesn't have to be centered for accuracy, because of the exclusive toroidal-wound transformer used in these models. Comes with voltage test leads and top grain cowhide leather case.



AMPROBE JUNIOR

New budget economy models designed to fill a specific range at low cost. This tool now makes it possible for every man who formerly carried an ordinary voltage tester to work with much greater accuracy, and with the added convenience of a real snap-around ammeter. Six models to choose from. Comes with voltage test leads.

AMPROBE®

AVAILABLE ONLY THROUGH THE DISTRIBUTOR

FREE TRIAL APPLICATION FORM

Pyramid Instrument Corp., Dept. CR-65
630 Merrick Road, Lynbrook, N. Y.

Gentlemen:

I'll take you up on your offer. Please have my local jobber arrange a two week FREE Amprobe trial—at absolutely no obligation to me. I am most interested in the model classification checked below:

Amprobe Jr. Amprobe "300" Amprobe "600"
 Send me your latest catalog of testing instruments.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

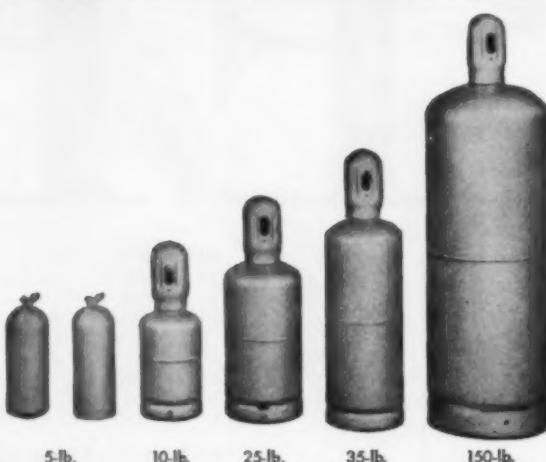
Circle No. 38 on Reader Service Card

**DON'T
SETTLE
FOR LESS**

use

Prest-O-Lite
Trade-Mark

**CYLINDERS FOR
REFRIGERANTS**



- ✓ Rugged, sturdy construction
- ✓ Uniform sidewall thickness
- ✓ Lightweight—easy to handle
- ✓ Finest workmanship
- ✓ Best appearance
- ✓ Tested far beyond all codes
- ✓ Extra years of trouble-free life
- ✓ They're economical!

You are *sure* that your refrigerant gas containers will give you many years of dependable service—and save you extra dollars—when you own PREST-O-LITE cold-drawn cylinders. They're built by the company which has been the largest manufacturer and *user* of compressed gas cylinders for almost half a century. In each step of design and fabrication the ultimate in gas containers is achieved—and this skill and experience is passed on to you with every PREST-O-LITE cylinder you get. It's no wonder that refrigerant cylinder buyers who have compared feature for feature have found out they are getting the greatest value with top-quality PREST-O-LITE cylinders.

Available in sizes ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. **WRITE TODAY** for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

MADE BY

Linde

LINDE AIR PRODUCTS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street UCC New York 17, N. Y.

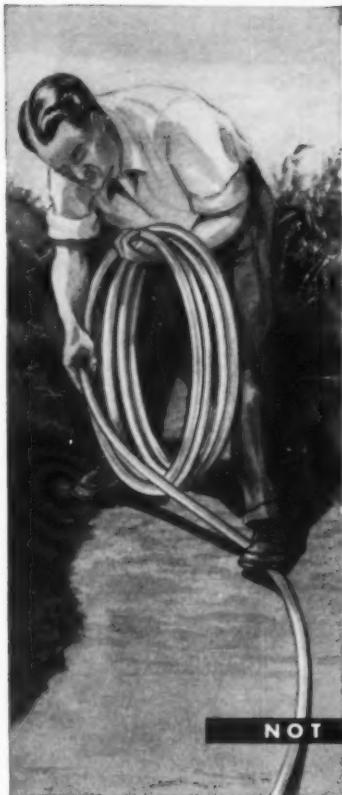
Offices in Other Principal Cities

In Canada: DOMINION OXYGEN COMPANY

Division of Union Carbide Canada Limited, Toronto

Circle No. 39 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

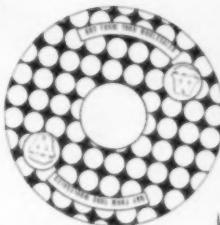


Next time...

DO IT

THE

"REEL" WAY!



Take a tip from the man at the right—he's laying out tube the reel way!

He's not bothering with awkward, loose coils; instead he's using the Wolverine round carton to reel out the tube. He's laying the tube in a straight line—avoiding tangles, kinks and bends—and he's taking full advantage of every inch of tube.

Yes, take a tip from him—do it the reel-way yourself. At the same time, take advantage of all the other conveniences of the new Wolverine round carton. Roll it, for example; or if you want to carry it, slip your arm through the convenient center hole. The carton has a gummed, color-coded identifying tape around the outer edge. A tug on it permits zip-quick opening without tearing the carton.

OTHER
WOLVERINE PRODUCTS
FOR THE
INSTALLATION TRADES

In addition to copper water tube Wolverine also manufactures copper refrigeration tube, automotive tube, drainage tube and S.P.S. pipe.

Most important of all, use the top-quality, dependable Wolverine copper water or refrigeration tube on all jobs. It will pay BIG dividends. Insist on Wolverine the next time you order tube from your wholesaler. WOLVERINE TUBE, 1405 Central Avenue, Detroit 9, Michigan.

BUY FROM YOUR WHOLESALER



WOLVERINE TUBE

DIVISION OF CALUMET & HECLA, INC.

Manufacturers of Quality Controlled Tubing
and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA • SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPT., 13 E. 40TH ST., NEW YORK 16, N.Y.

PLAN FOR PLUS-PERFORMANCE

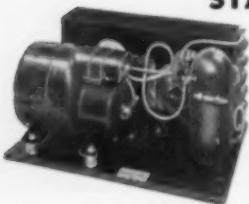
**plus
Continued
Cost Savings**

WITH

Servel

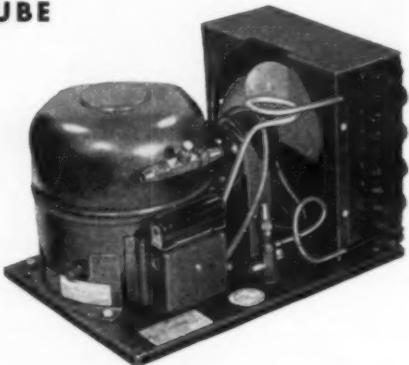
SUPERMETIC

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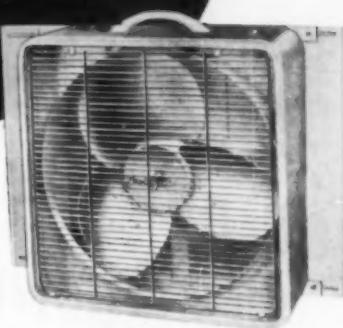
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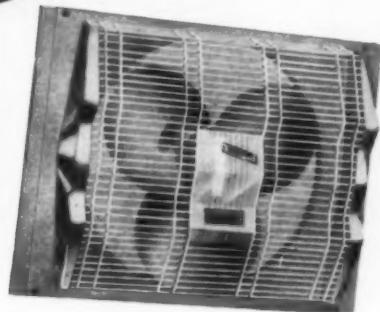


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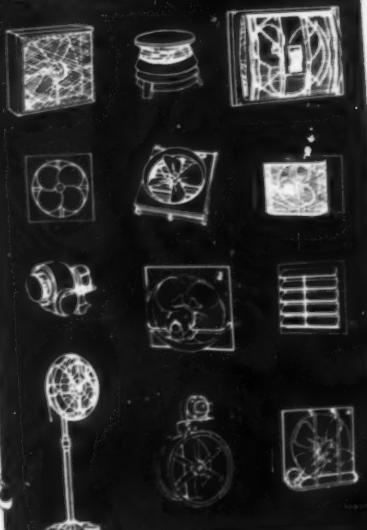
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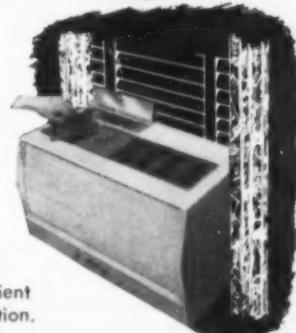
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B&NU'S

TRENDS·OPINIONS·REPORTS

DON'T OVERLOOK the importance of the savings in time, work and money ordinarily spent for housecleaning when you're talking to a prospect for residential air conditioning equipment. In a survey recently made by Fact Finders Associates, Inc., for Carrier Corp., covering homes already air conditioned, a whopping majority of the women interviewed said house cleaning no longer held its former fears for them. Average house cleaning time saved, they estimated, would total some 35 eight-hour days or seven 40-hour work weeks a year. Savings in cleaning bills for home furnishings, they estimated, averaged around \$45 a year. Some of them put the figure as high as \$150. Redecorating (after air conditioning) would be necessary only every five to 10 years, compared with every three years before air conditioning.

LIMITATIONS OF RIVER WATER as a coolant for industrial processes has caused Quaker Rubber Corp., Div. of H. K. Porter Co., Inc., to install four Servel "DUT" 25-ton water chillers to aid its production of belting, hose, and other rubber products. From November through April, Quaker has access to river water cool enough to remove undesired heat from certain of its machinery. But from May through October the Servel equipment is to be used five days a week, 24 hours a day. Objective of the cooling is to permit uniform compounding, shorten the mixing cycle, reduce downtime, and improve quality by removing heat generated in rolls and mixers. The company will use waste steam to operate the chillers, and estimates that almost the entire installation cost will be saved in one season.

EIGHT-FOOT CEILINGS will become standard in all new volume-built residential construction if a movement started recently by the American Standards Association and the Research Institute of the National Association of Home Builders works out as its sponsors hope. Pointing out that ceiling height is the most important of dimensions to standardize, a recent round table meeting, in recommending an 8-foot ceiling as standard, mentioned among other things that this height is enough to leave room for furring down the hall for air conditioning, and that it fits without cutting the 4 x 8-foot sheet size which is now standard for dry wall, plywood and many other materials.

A DUAL PURPOSE HEAT PUMP, to provide domestic hot water and refrigerated food storage facilities, may be marketed soon in Great Britain. Tests are now being made in several parts of the country under actual living conditions, and are said to have proved satisfactory to both users and to electric power companies. It is believed that such dual-purpose units would have a greater appeal to the British public than would refrigerators alone. A properly designed unit, according to some estimates, would cost one-third as much for space heating as an electric heating unit, and about one-half as much as an electric water heating system using an immersion heater.

BY THE END of 1965 more than 10 million U. S. dwellings will be equipped with air conditioning units and the retail air conditioning business will be approaching the billion-dollar-a-year level, predicts Mason Roberts, head of Frigidaire. Only about 1½ million homes in this country at present are partially or completely air conditioned. "We think that industry will sell over five times as many residential central systems in 1965 as in 1955," Roberts said. He predicted air conditioners of all types will be sold at a rate of nearly 2 million a year by the end of 1965.

ROOM AIR-CONDITIONER retail sales are well ahead of last year. Reports to the Air-Conditioning and Refrigeration Institute indicate that retail sales for the first quarter of 1955 were nearly 30% over the same period last year, and that inventories at the wholesale and factory levels are down nearly 12%. This indicates a rapid liquidation of last year's carry-over and presages another big year in the room air-conditioner industry particularly if the weather is favorable, ARI says.

New Face In The Food Field?

Believe it or not, some drug stores are now selling groceries, too! It's a new trend that seems likely to grow —and it means still another sales possibility for alert commercial refrigeration dealers

TIME was when grocery stores sold groceries, and drug stores sold drugs. More recently, the American consumer has found drug stores selling everything from hair-nets to flat-irons, while modern super-markets not only vend foods but also tooth-paste, cosmetics, razor blades, and cough-drops.

Now there are signs that still another stage of such cross-currents may be developing—and this one has important significance for dealers in commercial refrigeration.

It seems that numerous drug stores have now begun to sell food, and others are toying with the same idea.

Some have already found the experience of selling food in drug stores so successful that they now plan to go into this field still deeper.

Of course, no one can yet foretell how far this trend will go. But

whatever distance it goes, it will have importance to the commercial refrigeration industry because a major portion of food sales by drug stores will consist of items requiring some degree and type of refrigeration.

Initially, such stores may require perhaps no more than one normal temperature cabinet, and another cabinet for food that must be kept frozen. But the sizes may

well vary from a unit no longer than a mere 5 feet to as big as individual cases can practically go. Also, the sizes or the numbers may increase as rapidly as experience indicates the expansion justified.

On the initial basis, the cabinets now serve both for merchandising and storage. But this makes restocking dependent on delivery trucks, and leads to undesirable periods in which important items

PROMINENT DISPLAY for frozen foods is given by the Sauter Pharmacy, as scene (at right) indicates. Cabinet is between main entrance and soda fountain. Pre-cooked items are emphasized for hurried housewives.



DIVERSITY of products and services characterizes the Fairmont Pharmacy. (Top) Note air conditioner at rear of store, beneath sign, and refrigerator for biologicals. (Center) Self-serve case for dairy items and cold meats is well located; gets good play. (Bottom) Owner concedes frozen food case in secondary aisle is badly located, a situation he intends to correct in a new store that he is planning.

are out of stock. Hence, any considerable expansion in handling of refrigerated food by drug stores would tend to require not only the equipment for front-room merchandising, but also further equipment for back-room storage.

Typical druggists already in the food field do not expect stores located in high-rent areas ever to go into such sales very commonly or deeply. Rather, they say, the potentialities of this development are confined chiefly to neighborhood stores in big cities, and to others having similar opportunities in towns and villages. Even so, the refrigeration sales possibilities involved are tremendous, considering the number of stores that might qualify on the foregoing basis.

One of the pioneers in refrigerated foods in drug stores is Gilbert H. Siegel, proprietor of the Fairmont Pharmacy, in an outlying but heavily populated area of Toledo, Ohio.

Siegel's store is unusual in more ways than one. Indeed, it is faintly reminiscent of the old-time "general" stores that were once particularly characteristic of rural America. Unlike the old-timers, Siegel doesn't sell boots and shoes, or calico and barreled molasses. Instead, his stock of merchandise is as modern as that of any other store, and the pharmaceuticals in his prescription department include the latest products that science has been able to devise.

Nevertheless, Siegel does present an exceptionally wide and diverse variety of goods and services.

Prominently displayed at the rear of his store is a huge sign

Continued on page 122





. . . it takes two types of temperature to handle the modern bakery's refrigeration requirements. This small-town baker finds that retarder and freezer team up to save him time and money.

IT TAKES TWO . . .

THAT the potential market for additional refrigeration and air conditioning in thousands of owner-operated retail bakeries is far larger than many dealers in such equipment may presently suppose can be easily established by numerous examples. The experience of the baked goods shop operated by Morris Fitzpatrick at Flat Rock, Mich., is typical.

In many ways, the Fitzpatrick enterprise is like an uncounted number of bakeries located in towns, villages, and big city neighborhoods, in every part of the nation. There is a back room where the baking is done, and a front room where the products are sold. There are from one to three employees who are clerks or helpers. The actual baking is done by the proprietor himself.

Because the proprietor must be responsible for all the major details of the business as well as doing the baking, he is usually overworked and in a mood to welcome the introduction of any equipment that will make the enterprise more profitable and lighten the load of his multi-sided job.

Two items that Fitzpatrick has found especially helpful in both respects are his reach-in retarder and reach-in freezer. Some bakeries have only one or the other, but it is important to have *both* of them to obtain their maximum usefulness, the proprietor of the Flat Rock bakery asserts.

Originally, in the average bakery business, refrigerators were introduced to store finished products over night, and to retard the "working" of dough that had been prepared for deferred processing in the ovens. This purpose is still well served by such equipment which ordinarily is set to hold temperatures to about 36 F.

In more recent years, however, many bakeries have also begun using freezing cabinets, with temperatures around zero F., for the same set of purposes. These freezers have the ability to retard the working of dough still more effectively than the higher temperature refrigerators.

"But there are reasonable limits to which the retarding action may be applied," Fitzpatrick points out. "A freezer will slow the process



REFRIGERATION makes life better and easier for the baker, says Morris Fitzpatrick, shown here examining a typical batch of dough being held in his shop's reach-in retarder.

longer than a refrigerator but even when frozen solid dough will gradually lose some of its desirable qualities."

In the Flat Rock bakery, the freezer and the retarder are matching cabinets of white enamel on metal, supplied by Puffer-Hubbard Mfg. Co. The freezer is 5' long.

The retarder is 7' long. Both are about 34" deep, and about 7' high. Both are equipped with sliding drawers for convenience in loading and unloading. Each has its own $\frac{3}{4}$ -hp remote compressor.

By having both types of units available, Fitzpatrick is able to use them to some extent almost interchangeably. Under some circumstances, one kind of surplus dough will be put in the freezer, but under other circumstances the same kind will be put in the retarder. If the dough is unleavened, as for roll-type cookies, it will be kept usually in the retarder. Finished products, however, are usually kept in the freezer.

Help Production Planning

"The greatest help of these units, other than preventing the spoilage of unsold merchandise, is that they permit the baker to systematize and space his production from day to day more conveniently," says Fitzpatrick.

"Instead of baking a complete line of goods every night, it is possible to reduce the daily diversity of products baked, and still have maximum diversity of items ready for sale to our customers.

"In some cases, we achieve such simplification by mixing more dough than we need for immediate baking, and then keeping the unfinished product in storage until it is needed. In other cases, we find it better—as with pies—to complete the baking of a larger quantity than is immediately required, and then keep the surplus in frozen storage."

Air Conditioning Considered

Fitzpatrick, who has operated the shop for about 10 years, is also thinking of installing air conditioning, at least for the front sales room.

At the present time, the introduction of air conditioning would place this shop rather in the forefront among bakeries in this particular field of modernization—with advantages that apparently are not too well perceived as yet.

Continued on page 124



TWENTY BELOW ZERO is maintained in this freezer room at the plant of D. De Feo & Son, New Jersey's largest duck raiser, to process and freeze ducklings for the eastern market. Three of the four blower coils serving the room are shown here.

These Little Ducks Go to Market—Frozen

INSTALLATION of a completely new processing plant for freezing of ducklings has enabled D. De Feo & Son, Somers Point, N. J., the state's largest duck raiser, to market "oven ready" ducks. Formerly the firm had been killing and plucking their ducklings, placing them under refrigeration at 34 F, and delivering them to the market packed in ice.

The refrigerating system, designed and installed by Seaboard Appliance & Refrigeration Co. of Atlantic City, uses a Kramer Trenton Thermobank hot gas defrost system and remote type Unicorn air-cooled condensers. Two independent systems were installed to provide 50% of total capacity for storage; the other 50% is used when the 5000 lb. freezing load must be handled.

The installation comprises two combination Thermobanks, including four diffusers and two defrosting banks, in the 30' x 10' x 10' room, each connected to one 20 hp Brunner compressor complete with oil separators. Compressors are connected to the air-cooled condenser on the roof of the building. Condenser is divided so that half of the unit handles the condensing of refrigerant for each compressor. Each condenser section has a "Winterstat" to provide adequate head pressure for winter operation of the system.

The four diffuser units are staggered on either side of the 9" cork insulated room to provide complete air circulation. Ducklings can be piled 7" high without interfering with circulation. Total volume of air moved is 16,000 cfm. This circulation gives rapid heat transfer and quick freezing of products.

The diffuser units operate at -28 F refrigerant temperature and 8 F T.D. between air and refrigerant temperature to assure minimum dehydration. Box temperature is maintained at -20 F by two thermostats, one set at -18 and the other at -20 F. One compressor handles the load between -18 and -20; as the load increases and the temperature goes above -18 F, the second compressor starts automatically and boosts capacity of the system. Compressors are operated from low pressure controls and the thermostats control liquid line solenoid valves. An alarm system sounds a bell if temperatures reach zero, and also warns if anyone should be trapped inside the cooler. A changeover switch permits even usage of the compressors.

Why Give Away 15% of the Job?



...that's the provocative question which this experienced soda fountain specialist asks of commercial refrigeration dealers

OTTO A. GRUENEWALD should know the soda fountain field if anyone does. He has spent virtually his entire business life in one phase of it or another. He entered the business in 1921 as a factory draftsman and cost estimator at the White-Knight factory in Chicago. That was back in the days when soda fountains were still being refrigerated with salt and ice.

Later, in cooperation with Frigidaire engineers, he developed the first mechanically refrigerated soda fountain. This led him into the service end of the business, from which he eventually gravitated into sales work. Then, in 1926, White-Knight asked Gruenewald to take charge of its New York branch.

Backed by this well-rounded experience, he determined to go into business for himself. The opportunity came in 1932, when he bought out the White-Knight branch in Philadelphia, which was then being liquidated as part of a company-wide policy. He promptly changed the name of the firm to Gruenewald's Specialized Equipment Service, and proceeded to pour into this new organization all of the soda fountain know-how and general business experience which he had acquired through his previous activities.

Today, Gruenewald's firm — which presently is changing its name to Gruenewald's Food Equipment Service — stands as a completely equipped and fully staffed distributor of food service equipment, not just soda fountains alone.



THE OLD

...no opportunity here for the average commercial refrigeration dealer. Old-time 100% soda fountains such as this were so massive and complex that they could be handled only by specialized distributors.

GONE is the day of the old-time soda fountain in drug store or sweet shop. And gone with it is the highly specialized type of firm which devoted its full time to the sale and service of soda fountain equipment. While the passing of this great American institution may induce a touch of nostalgia in those members of a generation which used to look upon the "super-duper" ice cream confection a luxurious treat, it spells a new and growing profit opportunity for the commercial refrigeration and food service equipment dealer.

I can point to our own organization as a perfect example of this transition. When we first started in business back in the early 1930's, 100% of the jobs which we handled involved soda fountain equipment, and this soda fountain equipment amounted to about 85% of the total sales price. Today, only 70% of our installations involve soda fountain units of any type, and on the average the fountain equipment adds up to no more than 15% of the total bill.

What underlies this rather startling shift in sales emphasis? Three factors, primarily. First and foremost, the gradual but steady evolution of food service practices; secondly, the increasing activity of dairies and ice cream producers in supplying ice cream cabinets to users in order to promote their own brands of products; and, finally, the changes which have been made in soda fountain units themselves to make them more adaptable to this new way of doing business.

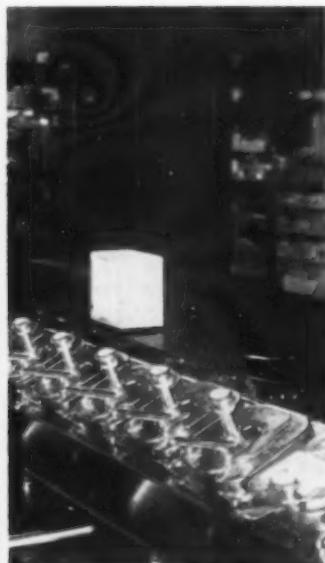
First, let's consider the change which has taken place in the food business itself. Even before World War 2 the trend away from the 100% soda fountain operation had begun. Gradually, the drug stores, con-

fectionery shops, and similar establishments that long had sold nothing but ice cream specialties began to add sandwiches and other types of short-order foods to their menus.

Then with the advent of the war, and its attendant period of shortages and priorities, the entire ice cream industry launched a concerted drive to have this product removed from the dessert or luxury category and classified as a basic food. The industry was largely successful in this attempt, and the impetus of this program greatly accelerated the pre-war trend toward the abandonment of "soda parlors" as such and the relegation of the soda fountain to the status of merely one subordinate unit in an integrated food service operation.

The tremendous growth of the bottled soft drink industry and the dramatic expansion of the soft ice cream or frozen custard business have been other factors which have carved away big chunks of the business which formerly was the unquestioned domain of the soda fountain operator—and of the soda fountain equipment specialist. The growth of both of these businesses has played an important role in sealing the doom of the soda fountain as a self-sustaining institution.

Aside from their promotion of ice cream as a food, rather than strictly a luxury dessert, the ice cream companies have exerted their influence on the soda fountain field in another very important direction. More and more, ice cream producers across the country have adopted the practice of supplying ice cream storage cabinets without charge to any food



THE NEW

... plenty of possibilities in an integrated food service line-up like this for the commercial refrigeration dealer to sell and install the modern abbreviated soda unit along with the rest of the equipment.

service establishments or other commercial users, as long as those users sell that producer's particular brand of ice cream.

In many localities, these ice cream companies have gone so far as to supply, on this same basis and with the same provision, any other condensing units which the customer might need, along with free service for all refrigeration equipment so provided.

In some instances the ice cream firms have worked closely with the equipment distributors in supplying them with leads to jobs, but even here the ice cream producers often have feathered their own nests by insisting upon a stipulated commission from any such business sold by the distributor. In some cases this even has been true whether or not the ice cream firm or its representatives played any part in supplying the lead.

They have, in most instances, been able to make such policies stick because of their close bond with ice cream merchandisers as a result of their equipment tie-in.

***"... simplified fountain design
has helped refrigeration dealers."***

All of these factors have combined to exert a definite influence on the development of soda fountain design.

As originally conceived and installed as the backbone of the nation's soda parlors, the so-called "100% soda fountain" was a massive and complex piece of equipment. A completely integrated unit, it contained separate refrigerated facilities for (1) storage of bulk ice cream, (2) storage of brick or package ice cream, (3) bottle storage, (4) jar enclosure, and (5) the cooling of water. Each of these separate compartments required the maintenance of a different degree of temperature. Consequently the fountain as a whole actually comprised a five-temperature refrigeration system, complete with brine tanks, water baths, and all of the controls and other necessary elements incorporated in such a system.

In addition to all this, of course, the 100% fountain incorporated all of the necessary equipment for the actual dispensing of carbonated water, plain water, and flavoring syrups, plus sink facilities for the washing of glassware, silver, and ice cream dishes.

Considering this impressive array of equipment and services, it is small wonder that the merchandising, installation and maintenance of soda fountains came to be handled by a highly specialized type of organization—the soda fountain distributor—set up for this specific purpose.

Thus it came about that the average commercial refrigeration equipment or food service equipment dealer, when confronted with any type of an installation which involved a soda fountain, would handle the job just up to that point, and then call in a soda fountain distributor to complete that particular phase of the installation. True, it meant giving up a portion of

the overall profit on an installation, but soda fountain equipment being what it was there was no other practical way of handling the job.

As all of the evolutionary factors previously outlined began to come into full play, however, the picture began to change. The development and refinement of direct expansion refrigeration systems resulted in great simplification of soda fountain design. With ice cream cabinets generally available without charge from the ice cream companies, the user no longer had any need for the storage facilities incorporated in the 100% fountains. And with the change in food service practices, more and more customers began to demand fountain units which required less space so that they would have more space for the installation of other types of food service equipment.

The result of all this was the development of the "bobtail" fountain, now more properly known simply as a soda unit. This, in effect, was merely the dispensing unit of the old 100% fountain, minus the ice cream cabinets, and with a heat exchanger to cool the water, a direct expansion coil in the storage compartment, and a drier coil in the return line running from the storage compartment through the jar rail. Thus simplified, the entire unit could be handled by a single control and constituted a "package" which any qualified refrigeration dealer could both sell and service.

Carbonation itself used to be somewhat of a mystery. Only two manufacturers originally made this kind of equipment, and few people outside of the specialized soda fountain distributors dared tackle the service problems which it involved. This was another factor which discouraged regular commercial refrigeration dealers from handling fountain units.

***"... carbonation systems no longer
are too tough for dealer to handle."***

Today, of course, carbonation systems have been so simplified in design that in most cases they form compact packaged units. This still remains the principal service problem of the soda fountain dealer, however, since as the ice cream companies have taken over the service of the refrigeration equipment supplied by them.

Many dealers prefer to solve this problem by subletting this portion of their maintenance operations to specialized carbonator service individuals or firms, which are steadily growing in number. Sometimes it is more economical for the dealer to handle his carbonator service in this way than to carry specialized technicians for this purpose on his own payroll. Furthermore, these independent carbonator service firms can perform a further valuable function as "bird dogs" for the fountain dealer.

The evolution of soda fountain equipment is not yet completed. Changes are still taking place. For instance, one of the latest trends is toward the use of continuous flow draft arms which provide automatic

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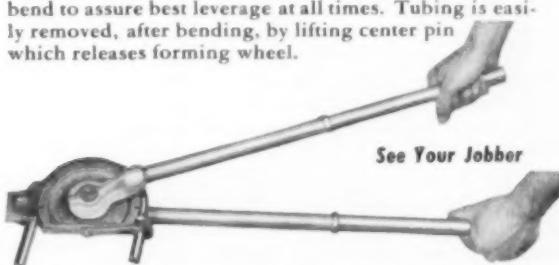
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BALANCING THE REFRIGERATION SYSTEM

with the aid of proper flow control devices

by John A. Schenk, director of engineering, Alico Valve Co.

PART FIVE

SOLENOID LIQUID VALVES

AUTOMATIC control of the liquid refrigerant flow depends frequently on the use of the solenoid liquid valve. Some of the principal applications of this useful control device are described here.

"Flood Back" Prevention

A solenoid liquid valve used as a "king" valve in the main liquid line of a multiple system, in the absence of solenoid liquid valves on each evaporator, is always a good assurance against liquid "flood back". In this application, the solenoid liquid valve is installed in the main liquid line and is so wired that it closes whenever the compressor is stopped, as shown in Figure 25. This arrangement prevents leakage of liquid refrigerant into the low side through thermostatic expansion valves, low pressure float valves, or other liquid refrigerant throttling type valves, during the "off" cycle.

An important variation of this application is the "pump down" cycle, especially adaptable for air conditioning installations. Figure 26 shows one suggested wiring diagram for such an arrangement, and the following sequence of operation occurs:

1. The fan must be in operation before the compressor can be started.
2. The compressor operation is controlled by a thermostat or humidistat.
3. The low pressure switch allows the compressor to "pump down", and once the system is "pumped down" the switch cannot recycle the compressor.
4. The compressor is started by action of the thermostat or the humidistat and does not depend on the low pressure switch for the starting operation.

5. The solenoid liquid valve opens at the same time the compressor motor starter relay is energized; this prevents excess liquid from accumulating in the evaporator between the time of solenoid liquid valve opening and starting of the compressor.

Control of Evaporator Sections for Capacity Regulation

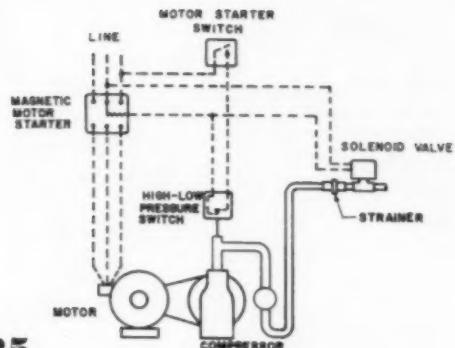
Solenoid liquid valves should be used where thermostatic expansion valves feed liquid refrigerant to certain types or sections of evaporators which may, according to variations in load conditions, require a temporary but positive interruption of liquid flow. This would apply particularly to multiple section evaporators in a unit where one or more sections should be shut off temporarily to provide a desired capacity reduction. In such cases, a solenoid liquid valve should be installed directly ahead of each thermostatic expansion valve, as shown in Figure 27.

Temperature Control In a Multiple System

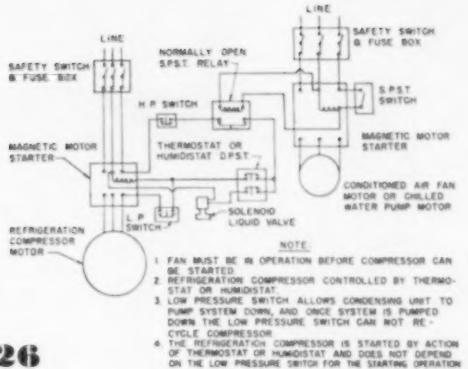
The temperature of a single unit in a multiple system can be controlled by a thermostat operating a solenoid liquid valve in the liquid line to that unit, as shown in Figure 28.

Liquid Refrigerant Level Control

If one or more full flooded evaporators are desired in an otherwise "dry" multiple system, a solenoid liquid valve, followed by a hand operated throttling valve, is placed in the liquid line leading to the shell or drum in which a liquid refrigerant level is to be maintained by an electric float switch (see Figure 20). The solenoid liquid valve is actuated by the electric float switch.



25



26

FIG. 25—Solenoid valve used as a "king" valve.

FIG. 26—Control wiring for air handling or chilled water unit.

FIG. 27—Solenoid valves used for capacity control.

FIG. 28—Solenoid liquid valves used in a multiple system.

FIG. 29—Solenoid suction valve on two-temperature application.

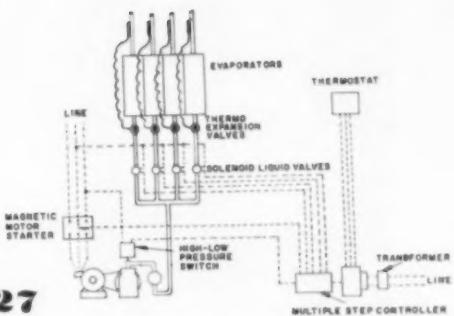
When the liquid level falls below a predetermined level, the switch opens the valve. When the desired level is again obtained, the switch closes the valve.

SOLENOID SUCTION VALVES

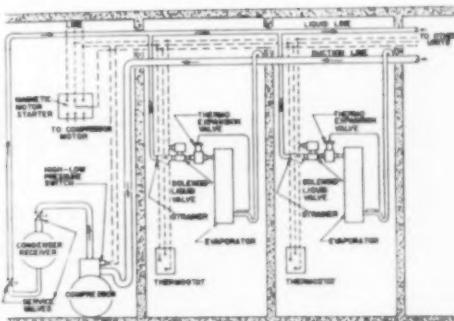
Solenoid suction valves may be used as a suction by-pass on installations with two or more evaporators in series, fed by one constant pressure liquid expansion valve or a thermostatic expansion valve. They are often used when complete isolation is required for defrosting or temperature control in a multiple system. If the temperature difference between two or more refrigerated evaporators is more than 20 F, a solenoid suction valve is often used in the outlet from the warmer evaporator to prevent the condensation of refrigerant in the colder evaporator during the "off" cycle as shown in Figure 29. In the absence of a solenoid suction valve on the warmer flooded evaporator of a multiple system, the continued operation of the compressor to cool the colder evaporator may pump out the warmer evaporator, causing it to become too cold. It is also good practice to use a check valve in the outlet of the colder evaporator to prevent condensation of refrigerant in this evaporator when the warmer evaporator is operating under high load with high suction pressure.

SOLENOID HOT GAS VALVES

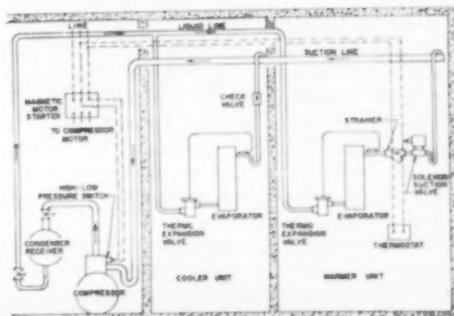
A special solenoid hot gas valve installed in a bypass around one or more cylinders will provide compressor capacity control. The valve may be operated either by a thermostat or switch. A check valve is



27



28



29



REFRIGERATED DISPLAY for all cakes proved the answer to this baker's profit problems.

Cake Display In Used Dairy Case Helps **Eliminate Bakery "Profit Leaks"**

COMPLETE elimination of such "profit leaks" as stale, a far better cake sales volume, and considerably less strain in production are all results of the complete refrigeration of all cake output at the Court Bakery, in Albuquerque, New Mexico.

Robert Grethel, the bakery's manager, made the decision to go "all out" for refrigeration nearly four years ago, when he found that the percentage of cakes which had to be marked down as stale—and even discarded—was growing too large.

Complicating the cake production picture at the bakery were the vagaries of the tourist season, which made it difficult to estimate the amount of traffic into the bakery. While a large part of the bakery's cake and pastry production is consumed in the associated

Court cafe, next door, there was still the problem of an erratic market for the balance of the bakery's goods.

Refrigerated display for all cakes seemed to be the only solution, Grethel decided. The bakery already had been using a low-temperature case to display whipped cream cakes, varieties topped with highly perishable icings, and similar delicacies. So, encouraged by this experience, Grethel shopped around until he was able to obtain a 22-cu. ft. display refrigerator which would maintain a temperature of between 30 and 35 F out on the retail sales floor.

This refrigerator previously had been used for the display of dairy products in a self-service super market, and Grethel was able to pick it up for only part

Continued on page 120

Franklin Motor

in a quality appliance
assures dependability
in operation

Franklin Motors
are engineered for each
application for lasting
dependability

kitchen Pig

Completely dependable as an institutional, high-capacity garbage disposer because of good design and workmanship with an application - engineered Franklin Motor. An excellent example of cooperation between two reliable manufacturers.

Franklin Electric provides unexcelled engineering service to manufacturers whose appliances require dependable, integrated electric motor drives. Working with Franklin, more and more manufacturers are improving product performance, cutting cost and enjoying leadership in acceptance.

Look for Franklin Motors as a reliable guide to quality in . . .

- LEADING WATER SYSTEMS
- FINEST SUBMERSIBLE PUMPS
- LATEST TYPE CELLAR DRAINERS
- NEWEST FARM APPLIANCES
- HEATING & AIR CONDITIONING



Franklin Electric Co., Inc.

345 EAST SPRING STREET . . . BLUFFTON, INDIANA



HOME OF DEPENDABLE ELECTRIC MOTORS

Circle No. 45 on Reader Service Card

Capitalizing on the benefits offered by adequate refrigeration facilities has made it possible for this downtown Phoenix, Arizona, bakery to . . .

Meet Shopping Center Competition

REFRIGERATION is the most potent tool with which the retail baker can meet the competition developed by new bakeries in suburban shopping centers, according to Ted Meyer, operator of Ted's Quality Bakery, Phoenix, Ariz.

Meyer, an enterprising operator, has been located for many years on 7th Ave. near the Phoenix downtown district, in an area which offers very limited parking.

In addition to its parking space limitations, the Ted's Quality Bakery has likewise suffered from conversion of 7th Ave. to a

"through street" which means that traffic travels at high speed, making it all the more difficult for the customer to pull over and stop. Thus, when during the past two years more than a dozen community shopping centers sprang up in the Phoenix suburbs, all of them offering convenient parking, freedom from parking meter worries, and a collection of retail stores at one point, Meyer realized that his sales volume was likely to suffer.

"Suffer it has", Meyer grinned. "There is no doubt that our volume has decreased. However, instead of being discouraged over the shopping-center competition problem, I decided to see whether I could compete with it by means of a definite planned campaign. As a result our volume is down only a few percentage points,

where in other retail stores in the downtown district, sales have dropped off by as much as 40 to 50%."

The campaign which the Arizona baker developed was based on three major points, and Meyer gave himself a year to accomplish them. Each step was decided upon only after a thorough estimate of the situation proved its worthiness.

Here are the three points:

1. Greater operating efficiency in the bakery to reduce all waste expense and "profit leaks", the saving to be passed on to customers in lower overall prices.

2. A \$4000 refrigeration installation, to guarantee permanently against customer disappointment.

3. A complete "show spot" exterior treatment for the bakery

Continued on page 118



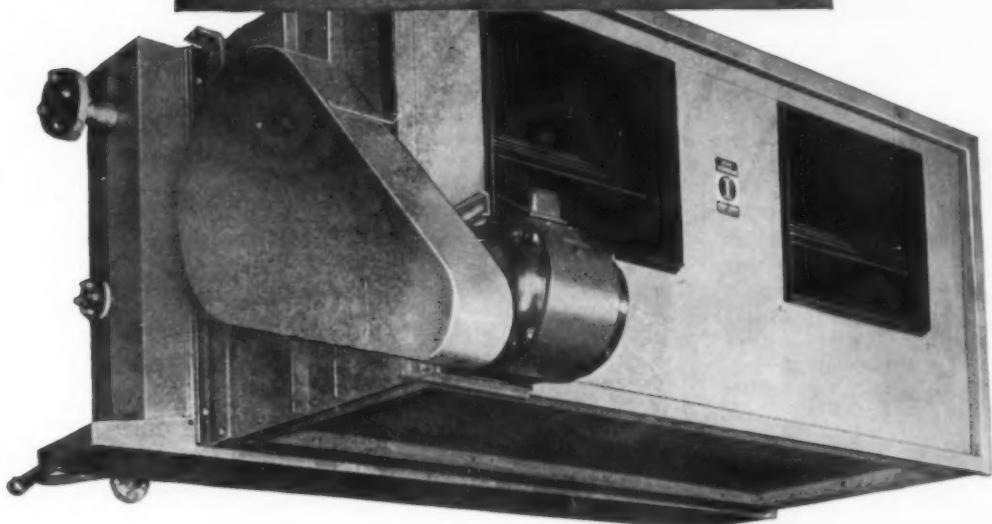
LOW TEMPERATURE display (above) and storage (right) facilities have enabled Ted's Bakery to level out its production curve, completely eliminate "stales", and attract the eyes of passers-by to help sales and profits.



Announcing...

Extra-Large C A P A C I T Y

THERMOBANK



for **FREON** and **AMMONIA**

NOW...no job is too large for the **KRAMER** THERMOBANK

The only completely automatic system for freezing temperatures offering these extra large capacities. THERMOBANK requires no manual attention whatsoever.

Ceiling mounted, THERMOBANK takes no

precious floor space. You can store products directly under the unit.

Can be used as an independent system or with an existing large system without affecting the operation of other evaporators.

WRITE FOR BULLETIN 294-6

KRAMER TRENTON CO. • Trenton 5, N.J.

Space Sell-Out is Forecast for ARI

9th Industry Exposition in November

With over 80% of all space sold, the Air-Conditioning and Refrigeration Institute advises manufacturers of air-conditioning and commercial refrigeration equipment to apply at once for space in the large, national trade show known as the 9th Exposition of the Air-Conditioning and Refrigeration Industry to be held in Atlantic City, Nov. 28 through Dec. 1, 1955.

"Having sold 72,000 sq. ft. of space already to 185 exhibitors, the Atlantic City exposition is already 12% larger than the entire Cleveland show, and in all probability will be over one-third larger," according to F. G. Coggins. "While there is still plenty of good space left, there is every indication that we will have an early sell-out even though the show is still over seven months away. This will certainly be the largest and most complete showing of air-conditioning and refrigeration ever held," he said.

Full information on the Exposition can be obtained by writing to George E. Mills, show director, at 1346 Connecticut Ave., N.W., Washington, D. C.

The present list of exhibitors includes:

A-P Controls Corp., Ace Cabinet Corp., Acme Industries, Inc., Addison Products Co., Aerofin Corp., Aerovox Corp., Air Conditioning and Refrigeration News, Airtemp Div., Chrysler Corp., Airserco Mfg. Co., Inc., Alco Valve Co., Allen-Bradley Co., Allin Mfg. Co., American Air Filter Co., American Brass Co., American Coils Co., American Gas Machine Co., Inc., Aminco Refrigeration Products Co., Ansul Chemical Co., Appliance Manufacturer Magazine, Arrow-Hart & Hegeman Electric Co.

Bacharach Industrial Instrument Co., Bailey & Perkins Co., Bal-Air, Inc., Bally Case and Cooler Co., Baltimore Aircoil Co., Inc., Bell & Gossett Co., Betz Corp., Brewer-Titchener Corp., Brunner Manufacturing Co., Bryant Heater Div., Affiliated Gas Equipment, Inc., Bundy Tubing Co., Bush Manufacturing Co.—Heat-X, Inc., Calgon, Inc., Carbonic Dispenser, Inc.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

Carrier Corp., Carver Pump Co., Century Electric Co., Chase Brass & Copper Co., Chemical Solvent Co., Coldin Cabinet Co., Coleman Co., Colonial Alloys, Co., Commercial Refrigeration Magazine, Copeland Refrigeration Corp., Cory Corp., Creamery Package Mfg. Co., Curtis Refrigerating Machine Div., Curtis Mfg. Co., Cutler-Hammer, Inc.

Davison Chemical Co., Div. of W. R. Grace & Co.; Dayton Rubber Co., Dean Products, Inc., Deering Air Conditioning Co., Delco Products Div., General Motors Corp., Detroit Controls Corp., Dole Refrigerating Co., Domestic Engineering Co., E. I. du Pont de Nemours & Co., Inc., Dow Chemical Co., Emerson Electric Mfg. Co., Essex Wire Corp., Eston Chemicals Div., American Potash & Chemical Corp., Evans Mfg. Corp., Fasco Industries, Inc., Fedders-Quigan Corp., Federal Refrigerator Mfg. Co., Flexible Tubing Corp., Fogel Refrigerator Co., Foster Refrigerator Corp., Frankell Mfg. Co., Frick Co., Frigid Igloo Mfg. Corp., Frigidaire Div., General Motors Corp., Friedrich Refrigerators, Inc., Furnas Electric Co.

General Chemical Div., Allied Chemical & Dye Corp., General Controls Co., General Electric Co. (Schenectady), General Electric Co. (Bloomfield), Gibson Refrigerator Co., Glen-ee Refrigeration Corp., Halstead & Mitchell, Henry Valve Co., C. V. Hill & Co., Inc., Holsclaw Bros., Inc., Hussman Refrigeration, Inc., Imperial Brass Mfg. Co., International Harvester Co., International Register Co., Jacken-Evans Mfg. Co., Jamison Cold Storage Door Co., Jarrow Products, Inc., Jewett Refrigerator Co., Inc., Jordan Refrigerator Co., Kason Hardware Corp., Keco Industries, Inc., Kelvinator Div., American Motors Corp., Kenmore Machine Products, Inc., Kennard Corp., Kerotest Mfg. Co., Kirsch Co., Koch Refrigerators, Inc., Kramer Trenton Co.

Larkin Coils, Inc., Lau Blower Co., Lehigh, Inc., Lewin-Mathes Co., Linde Air Products Co., Lipman Div., Yates-American Machine Co., Liquid Freeze Corp., Lonergan Manufacturing Co., Madden Brass Products Co., Maintain Store Engineering Service, Inc., Marco Industries, Inc., The Marley Co., Marlo Coil Co., Jas. P. Marsh Corp., Maurey Mfg. Corp., McCord Corp., McCray Refrigerator Co., Inc., The McIntire Co., McQuay, Inc., Meier Electric and Machine Co., Metals and Controls Corp., Minneapolis-Honeywell Regulator Co., Mitchell Mfg. Co., Morrison Products, Inc., Mueller Brass Co., Mueller Climatrol Div., Worthington Corp., Nickerson & Collins Co., The Pacific Lumber Co., Paragon Electric Co., Penn Brass & Copper Co., Penn Controls, Inc., Pinnacle Equipment Corp., Radio Corp. of America, Ranco, Inc., Reading Tube Corp., Redmond Company, Inc., Refrigeration Appliances, Inc., Refrigeration Engineering, Inc., Refrigeration Specialties Co., Rheem Mfg. Co., Remco Inc., Reynolds Metals Co., Rochester Products Div., Sealed Unit Parts Co., Inc., Servel, Inc., Sherer-Gillett Co., Sporlan Valve Co., Square D Co., Standard Refrigeration Co., Sub-Zero Freezer Co., Inc., Sun Oil Co., Superior Foundry, Inc., Superior Valve & Fittings Co.

Tecumseh Products Co., Temprite Products Corp., Tenney Engineering, Inc., The Texas Co., Torrington Mfg. Co., T O T Towers, Inc., Tranter Mfg. Inc., Kold-Hold Div., True Mfg. Co., Tyler Refrigeration Corp., Typhoon Air Conditioning Co., Inc., Unilelectric, Inc., Union Asbestos & Rubber Co., United Frigitor Engineers, United Refrigerator Co., United States Air Conditioning Corp., United Wire & Supply Corp., Velocity Power Tool Co., Victor Products Corp., Viking Copper Tube Co., Virginia Smelting Co., Henry Vogt Machine Co., Wabash Corp., Wagner Electric Corp., Wagner Tool & Supply Corp., Warren Company, Inc., Westinghouse Electric Corp. (Pittsburgh), Westinghouse Electric Corp. (Mansfield), Whitehall Engineering Co., White-Rodgers Electric Co., Wolverine Tube Div. of Calumet & Hecla, Inc., Worthington Corp., York Corp.



NEW OFFICERS of Western International Association of Refrigeration Service Engineers Society posed for this picture after they were elected at a recent educational conference in Tacoma, Wash. They are (left to right): Ralph Jones, Tacoma, treasurer; Morris Smith, Seattle, secretary; Paul Nuss, Eugene, Ore., vice-president; Fay Snyder, Seattle, president; William Baker, Vancouver, B.C., vice president; Gordon Brown, Portland, sergeant at arms; Dick Bellinger, educational chairman.



Drivers can call office as well as receive calls from office.

How RCA 2-Way Radio-Dispatched Service Pays Off in COOL Savings

*... over 16% less travel time per call
... up to 20% more calls per day*

"Trucks are being routed faster, more calls per hour are being made with RCA 2-way radio," declares the vice-president of an air-conditioning service business in Washington. An executive of a refrigeration service company states, "Our average travel time per call has come down from nearly 3 miles to 2.5 miles. And calls per man per day have increased from 7.5 to an average of 9." Service men do a more efficient job, the customer is sold on your all-out performance.

Drivers can call the office as well as receive calls from the office, and they can talk to each other (if you want that way). Office personnel can oper-

ate the radio—it's easier to use than your telephone. A truck can be reached whether it's moving or parked. It's just as if your dispatcher were alongside every man.

The installation of the RCA 2-Way Radio soon pays for itself . . . and then pays off daily in dividends of cool savings and extra profits that mount into thousands. The RCA reputation for engineering skill and all-out excellence of equipment assures long life and trouble-free performance.

The RCA Service Company provides installation and service on a nationwide basis.



Dispatcher controls every driver. Calls are dispatched immediately.



Service men do a more efficient job, have time for more calls.

----- Use handy coupon for further information -----



**RADIO CORPORATION
of AMERICA**

COMMUNICATIONS EQUIPMENT
CAMDEN, N.J.

Radio Corporation of America
Communications Equipment, Dept. S-261, Building 15-1, Camden, N. J.

- Please send me your new booklet explaining profitable application of 2-Way Radio in service fields.
- Please have an RCA Communications Specialist call.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____ COUNTY _____

CITY _____ ZONE _____ STATE _____

COMMERCIAL REFRIGERATOR SALES NEWS

Salesmen Speak Their Minds on The Subject of Sales Meetings

DO you know what your salesmen really think of the way in which your company's sales meetings are conducted? Have you ever given them a chance to tell you the types of information they'd really like to have presented to them?

Mindful of the trend toward interest in sales meetings as rallying points and replenishers of product knowledge and selling information, *Electrical Wholesaling* recently surveyed a group of electrical distributors' salesmen throughout the country. Because their comments seem to apply equally well to other fields of sales endeavor, such as the fields of commercial refrigeration and air conditioning, they are summarized in this article.

Using this information as a starter, you might develop a questionnaire for your own men. If your sales meetings fall short of general approval, studied a revision is almost sure to give you more sales results for the time and money you expend.

The electrical salesmen were asked to rate 10 basic sales meeting features in the order of their importance to themselves. Here are the results, in the order named:

1—Description of the product and its uses.

2—Tips on how to sell the product.

3—Charts, models, films to bring out sales points in detail.

4—Comparison of products with competitor's lines.

5—How to meet sales arguments of competitive products.

6—Price compared with that of competitors in the field.

7—Demonstration gimmicks, samples to help sell product.

8—Size of market and how much it is worth in potential volume.

9—Question and answer period to help clear up problems.

10—Outline of national consumer product advertising.

The questionnaire also invited further comment and asked spe-

Other dislikes itemized were:
The old style "pep" meeting—or "get out and fight!"

Long-winded presentations, canned talks.

Executives, sales managers, and other "brass" who walk in and out of meetings at will.

Lengthy technical description of a product where a general one would suffice.

Exaggeration of past sales or potential sales of a product.

Sales meetings are too often one-sided get togethers.

Lack of importance of closing the sales meeting at the scheduled time, when a time has been set.

Selling an item on the national advertising it will have and not on the use or merit of the product.

Presentation too often poorly prepared.

GOVT. AGENCY CATALOGS FOOD RETAILING DATA

The commercial refrigeration dealer desiring to add to his own knowledge of food store planning and food retailing practices, or desiring to have this information available to pass on to his food market customers, would do well to check signals with the Small Business Administration of the U. S. Department of Commerce.

This agency has issued a bulletin (BSD No. 5) which comprises a listing of literature on various phases of food store arrangement and operation which is available from a number of sources. Several typical titles, together with the sources from which they may be obtained, are listed below:

U. S. Department of Agriculture, Washington 25, D.C.:

"Some Improved Methods of Handling Groceries in Self-Retail Stores". Marketing Research Report No. 7, 1952, 118 pp, 55¢.

"Retailing Prepackaged Meats", 1949, 28 pp, free.

"Better Utilization of Selling Space in Food Stores", Part I.

"Relation of Size of Shelf Display to Sales of Canned Fruits and Vegetables", Marketing Research Report No. 30, 1952, 29 pp, 20¢.

"The Check-out Operation in Self-Service Retail Food Stores"



"ONE ON THE HOUSE" was the order of the day as top management, field men, distributors and customers sampled the output of the new "Millshake" machine during the recent open house staged by Mills Industries, Inc. at its new Chicago headquarters. The nearly 400 persons who attended also had the opportunity of meeting the new Mills "brass", including Thomas J. Riggs, president of both F. L. Jacobs Co. and Mills; Jack Keller, vice president and general manager of the Jacobs organization; and Pete Maloy, new sales manager of Mills.

cifically, "What don't you like about sales meetings?" The comment indicated that:

Sales meetings are too long, drawn out.

Manufacturer's men don't know enough about the product or can't seem to get the knowledge across.

Completely NEW
SOFT-DRINK DISPENSER
by KOLD-DRAFT

A COMPACT UNIT!



A COMPLETE PRODUCT LINE INCLUDING:

- Soft drink dispensers with syrup cabinet attached—or with syrup tanks remote
- With one, two, three, four faucets
Goose-neck or straight shank
Jet-stream and soft soda
Still drinks
Ice water
- A complete line of underbar dispensers
- New Kold-Draft "UNI-JET" Speed Carbonator

**A New Product of the
KOLD-DRAFT DIVISION**

**UNIFLOW
MFG. COMPANY**

East Lake Road
ERIE, PENNSYLVANIA

FEATURING:

- Perfect Mixing of Soda and Syrups
- Savings up to 60% on Soft Drinks; 95% on Soda
- Greatest Possible Cooling Capacity for Peak Loads
- Equipment Completely Stainless Steel Inside and Out

**FREE BULLETIN
and
DEALER PRICES
AVAILABLE**
WRITE TO:
THOMAS A. MARTIN,
Sales Manager

Circle No. 47 on Reader Service Card
& AIR CONDITIONING • JUNE, 1955

VIMCO·STA-KOLD·SNO-QUEEN FREEZERS

WITH
automatic
defrost

NO ICE
SCRAPING!



When freezer requires defrosting action, the compressor and the Kramer Thermobank automatic defrost system forces hot gas through the coils thereby preventing the formation of undesirable ice deposits.

EXTRA VALUE FEATURES:

- Faster and more efficient defrosting
- Eliminates ice build-up—Lowers operating costs
- Maximum food protection at all times
- Rugged, 100% All-Metal construction
- 48 New Models (including bakers freezers)
- Hermetically sealed compressors designed for easy servicing

Specially designed for top performance, operating economy and long life. More exclusive features per dollar than any other make including interiors that can be changed or rearranged in minutes — no tools needed. Available in stainless steel, aluminum or baked white enamel. From 15 to 90 cu. ft. Self-contained or remote.

WRITE, PHONE OR WIRE FOR LITERATURE OR INFORMATION

VICTORY
METAL MANUFACTURING CORP.
 PLYMOUTH MEETING, PENNA.
DIRECT FACTORY REPRESENTATIVES IN ALL PRINCIPAL CITIES—SOLD THROUGH DEALERS EXCLUSIVELY

Circle No. 48 on Reader Service Card

"around the clock" performance...

"around the house" economy!

Whitehall

UNARCO MOBILE AIR CONDITIONER



MORNING

Start the day with a Whitehall Unarco Air Conditioner in the kitchen and dining area (back again at dinner-time).



ALL DAY

Move the unit into the living room for TV viewing and all other family pastimes. No windows to worry about.



ALL NIGHT

Now plug the same unit into a bedroom wall outlet and enjoy comfortable sleeping.

GET THE FACTS on Whitehall... Do it today!

**WHITEHALL ENGINEERING
COMPANY**

1630 South Michigan Avenue, Chicago 16, Illinois



Circle No. 49 on Reader Service Card

Agriculture Information Bulletin No. 31, 1951, 72 pp, 40¢.
General Electric Company, Lamp Division, Advertising Department, Nela Park, Cleveland 12, Ohio.

"Planned Lighting Builds Sales and Profits", 12 pp, free.

"Planned Store Lighting, Layout and Design Guide", folder, free.

National Cash Register Co., Dayton 9, Ohio.

"The Check-out Lane—Pathway to Greater Profits", by John M. Wilson, 14 pp, free.

National Association of Retail Grocers, 360 N. Michigan Avenue, Chicago 1, Ill.

"Design for Selling", 1949, 42 pp, 25¢—The basic elements of merchandising as they affect store design, decoration, lighting, equipment, layout and departmentalization.

"Store Modernizing Guide", 1948, 73 pp, \$1.00—Ideas on floor plans, store fronts, floors, walls, ceilings, fixtures, lighting, ventilating, air conditioning, parking lots.

"Your Bakery Department", 1950, 25¢; "Your Dairy Department", 1950, 25¢; "Your Meat Department", 1950, 25¢; "Your Produce Department", 1950, 25¢; "Your Grocery Department", 1949, 25¢—These booklets, containing approximately 35 pp each, contain methods of advanced management and merchandising designed to build profits and attract customers through quality, variety, arrangement, display, packaging, pricing, and other means.

PLANS FOUR COLORS FOR STORE CASES

Four colors in addition to white are to be made available by Sherer-Gillett Co. on its self-serve refrigerating equipment for stores. The colors will be coral, yellow, blue and green.

Mainly the objective is to permit equipment to match store walls but the possibility is also considered to use colors to identify various classifications of food departments.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

Outstanding quality

When you see one of these beautiful White-Rodgers Room Thermostats on the wall of a new home ...you have found a builder who knows and appreciates quality...and insists on it.

Why don't you?



There are many unusual features about White-Rodgers Room Thermostats besides their beauty—too many to describe here. To know them all, write today for literature that gives complete information.



WHITE-RODGERS
Controls FOR HEATING • REFRIGERATION
AND AIR CONDITIONING

ST. LOUIS 6, MO.
TORONTO 8, ONTARIO

No matter how well built the air conditioning or refrigeration equipment you install...if its performance depends on automatic controls...it can be no better than the controls with which it is equipped.

THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

APPLICATIONS MANUAL

by Hugo C. Smith

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Avoid Headaches in Equipping Existing Coolers By Checking Vapor Seal as Well as Insulation

Due to the high vapor pressure difference between inside and outside, moisture may penetrate through the building structure of any cold storage room unless the insulation is properly applied and sealed against moisture. The "do-it-yourself" trend is not restricted to the home owner, and many users of cold storage facilities make the mistake of contracting the rooms themselves, or having them constructed by people without the necessary knowledge or experience in the refrigeration field. Then they call in the refrigeration contractor to provide the cooling equipment.

The contractor can lay himself open to many a headache if he tackles any such job without first thoroughly investigating the type of insulation used and the manner in which it was applied, to be sure that adequate vapor sealing as well as adequate insulation has been provided.

Look Out for "Home Made" Jobs

These conditions are encountered particularly frequently on all types of farm produce coolers, apple storage installations, and various types of commercial applications, such as for storage vaults.

Common construction on such installation consists of double masonry walls using cavities of 6 to 12" for various loose fill insulations. Another common method of "home made" insulation is to use a mineral wool or fiber-glass batt of varying thickness. Usually this is used in conjunction with a so called "dead air" space, which to most carpenters is the ultimate in insulation. Most cooler installations of this type fail

in one important particular; that is the absence of a vaporproof seal on the outer side of the insulation. Perfect vapor sealing is absolutely necessary if one is to obtain the proper coefficient of heat transmission from any given insulation material.

If investigation of any job shows that conventional insulation materials have been used and installed ac-



cording to manufacturers specifications, particularly as to vapor sealing, then the refrigeration contractor may install equipment with reasonable security.

The latent heat gain in a cooler with poor vapor sealing or no vapor sealing can be a considerable factor. It can increase cooler loads as much as one third, and result in failure of equipment during periods of hot humid weather. This equipment failure is accompanied by heavy coil frosting.

The actual permeability of vapor

thru 3-5/8" of unprotected mineral wool is 3.5 Btu per hr per 100 sq.ft. per gain per lb. difference, latent heat.* Specifically, grains of moisture in the air at 90 F d.b. and 70% relative humidity with 81.6 F w.b. total 151 grains of moisture per lb. of air. The grains of moisture inside a cooler of 36 F d.b. with 80% relative humidity and 33.7 F w.b. total 25 grains per lb.

Load Calculations Shown

The increased load over and above your normal load calculations would then become $3.5 \times 1 \text{ hr.} \times (151-25)$ equals 441 Btu for each 100 sq.ft. of cooler surface. This would increase heat loss and usage factors approximately one third on the average walk-in cooler. For instance, a cooler of 7000 Btu capacity would normally have heat loss and usage load of approximately 91,000 Btu per hr. The additional latent load due to unprotected insulation would amount to 30,800 Btu.

Permeability Discussed

This specific example is not meant to reflect in any way upon mineral wool. Many insulations will have similar permeability factors if not properly protected. Notable exceptions to the above are "Styrofoam" and "Foamglass" both of which need no vapor sealing inasmuch as the material itself is inherently a nearly perfect vapor seal. K factors for these materials can then be taken to be permanent, while values of insulations which may contain moisture must be sharply increased in direct proportion to their moisture content.

Most cork coolers constructed before 1925 contain no vapor seal whatsoever. The cork at that time was installed directly in cement plaster, as opposed to the present-day method of erection in hot asphalt, which is an excellent vapor barrier.

Safety Factor Suggested

Where the application engineer encounters coolers unprotected with any vapor seal whatsoever, he may safely install refrigeration equipment if he provides for $\frac{1}{3}$ greater Btu capacity than the sum of his heat transmission and usage factors. Increased latent loads will not always be this great. We merely suggest using this figure if the application engineer does not have the exact vapor transmission factors. It also must be borne in mind that on coolers whose outside walls are exposed directly to the outer air, wind pressure itself will force moisture laden air directly into the cooler at an alarming rate. (A 13" brick wall



Non-Waxing — Foam-Resistant —

unexcelled for all low-temperature applications.



Unmatched Stability — under all conditions of refrigerant dilution, heat and pressure.



Specified: by nearly all original equipment manufacturers.



Your Wholesaler Has It!

Distributed nationally by Virginia Smelting Company, Dept. 64, West Norfolk, Virginia.

VIRGINIA
Chemicals

ESOTOOL • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSITE TAPE
SUNISO REFRIGERATION OILS

will pass 21 cu.ft. of air an hr. thru every sq. ft. of wall surface in a 30 mph wind.) We believe the equipment engineer should insist on proper vapor sealing in cases of this kind. There are several asphalt paints that do an acceptable job on outside building walls.

**Comparative Resistance to Vapor Transmission of Various Building Materials by L. V. Teesdale, ASHVE Trans. Vol. 49; 1943 P. 124.*

AMANA SALES HIT RECORD LEVEL

Sales of freezers and room air conditioners by Amana Refrigeration, Inc., in the first three months of 1955 were 47.5% higher than in the same period last year. George C. Foerstner, executive vice-president, told the firm's field organization attending its spring sales meeting that the first quarter of this year was the biggest in Amana's history.

MARSH OPENS PLANT IN WESTERN CANADA

Marsh Instrument & Valve Co. (Canada) Ltd., has opened a new manufacturing plant and sales office in Edmonton, Alb., with M. C. Minton as resident manager. Gauges, needle valves, and other products will be produced, partly for the area's oil industry.



A SCALE MODEL of a modern supermarket, complete even to cash registers and customers, was a major exhibit of U. S. Air Conditioning Corp. at the recent Super Market Institute convention held in Cleveland. The display was designed to visualize the simplicity of installing and operating this company's "RK" packaged central station air conditioners. Above, R. D. McLain, divisional manager (center), and L. P. Hanson, vice president in charge of sales (right), are spectators at a demonstration of the 3 x 5-ft. model.

FIRESTONE TO HANDLE MITCHELL UNITS ONLY

Firestone Tire & Rubber Co. will handle Mitchell room air conditioners exclusively in its retail stores, reports Bernard A. Mitchell, president of Mitchell Mfg. Co. Firestone will discontinue its own model and drop other lines, Mitchell said.

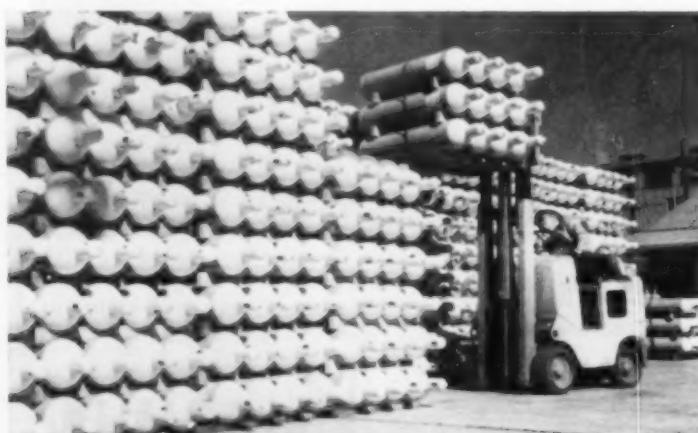
CITY ADOPTS LAW TO CONSERVE WATER

All new cooling, heating and industrial processing systems using city-supplied water in Cheyenne, Wyo., will have to be equipped with approved water conservation devices under terms of an ordinance adopted recently by the city council.

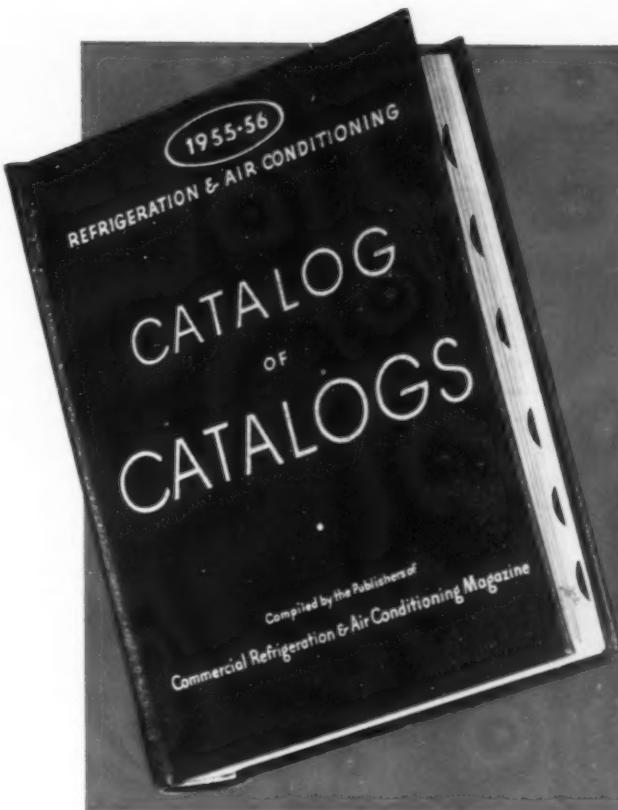
The ordinance further provides that "existing cooling systems having a capacity of two tons or more of refrigeration and every cooling, heating and industrial water use device using in excess of 20,000 gallons of water per month shall be provided with an approved water conservation device on or before Oct. 1, 1955."

Another provision requires that effective shutoff devices and regulatory valves must be installed on cooling systems of a capacity of less than two tons in order to control the water flow to the minimum requirement at any load.

Under the ordinance, persons desiring to install any such system will be required to obtain approval of their equipment and an installation permit from the city engineer. The measure provides a \$100 maximum penalty on conviction of violation.



MULTI-UNIT HANDLING of "Genetron" cylinders has been adopted by General Chemical Div., Allied Chemical & Dye Corp., to assure the containers will be delivered to customers in factory-fresh condition. Groups of eight or twelve cylinders are spaced by notched boards and then are banded by steel strapping, to permit storage and transit problems efficiently.



You Will Use This
"CATALOG OF CATALOGS"
 every day!

THIS IMPORTANT REFERENCE CATALOG

— the first volume of its kind — bound in a durable hard cover — will be issued in April, 1955. Never before has there been a single volume combining all the product specifications and data of commercial refrigeration and air conditioning equipment, both packaged and remotely installed, as well as all the components of such units and systems. Manufacturers will present their own catalog or specification sheets in this book.

AIR CONDITIONING EQUIPMENT SECTION

Bound-in manufacturers' catalogs or specifications sheets, with working technical data and source listings. The features of this section will be the comparative specification listings of 1955 lines of room, store, and residential air conditioners. This will be presented in the same manner as that of previous years, which has been so successful, and used by so many thousands of men in this field.

CASE AND FIXTURE SECTION

Refrigerated case manufacturers' catalogs and specifications sheets answering problems in the application of packaged and remotely installed cases and coolers for merchandising or storage of all types of food and beverage products. Blueprints of practical store plans for typical food market layouts. Listings of manufacturers of this equipment.

COMPONENT SECTION

General engineering, contracting, and architectural working data, including comprehensive listings of components and accessories. Information to aid in the application of equipment in refrigerated or air conditioned areas. Bound-in manufacturers' catalogs and specifications sheets.

"WHERE TO BUY LOCALLY" — Wholesaler Section. Listing by geographical area, the independent local outlets for refrigeration and air conditioning equipment and supplies. Printed on yellow stock and carefully collated to aid in establishing local purchasing sources.

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Commercial Refrigeration
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CATALOG OF CATALOGS

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 CATALOG OF CATALOGS as soon as it is available.

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Name _____

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ABOUT PEOPLE . . .

Continued from page 20

George E. Bowdoin, former president of U. S. Hoffman Machinery Corp., has joined Worthington Corp. as assistant to the president.

Appointment of **Louis M. Hull** as manager of new construction

sales for the Day & Night Div. of Carrier Corp. has been announced by the firm's general manager, William J. Bailey, Jr. Hull formerly was heating and air conditioning product promotion manager.

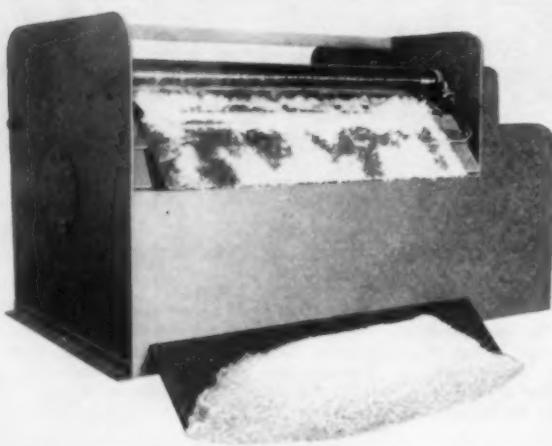
American Blower Corp. has announced the appointment of **Robert L. Stickley** as assistant advertising manager.

John R. Morrill has been elected a vice president of Servel, Inc., and general manager of the company's commercial refrigeration division. For the past three years Morrill has been vice president and

general manager of Gibson Welding Supplies, of Spokane, manufacturers and distributors of welding equipment and supplies. Previously he was vice president of the Baker Raulang Co., Cleveland, and assistant vice president of the Lincoln Electric Co., Cleveland. As vice president and general manager of Servel's commercial refrigeration division, Morrill will be completely responsible for that division's engineering, procurement, manufacturing, distribution, sales, service and profit-and-loss.

KNOWLES ICE MAKER

Sizes From
½ Ton
to 10 Tons
Daily
Capacity



The Cost Of Ice Is The Cost Of Water And Power

These machines are solid drum, direct expansion type and are made to operate on ammonia or Freon-12 as desired. The ice comes from the machine at low temperature with no entrained water and can be handled on any conventional conveyor system. The machines are exceptionally sturdy in construction, long lived, and are simple to operate. There is no deterioration of the ice making surface as the impact bar does not touch the drum but removes the ice by impact. No sharpening of the impact bar is necessary.

These machines consistently exceed their minimum and often exceed their maximum rated capacities. Additional plant space will be free for other operations, because a Knowles Ice Maker requires very little floor area, and storage may be reduced to your exact requirements. The inconvenience of delayed delivery schedules, large purchases to insure a supply of ice, and other interruptions of routine work are eliminated.

DESIRABLE TERRITORIES OPEN FOR DEALERS. INQUIRY SOLICITED.

BELT-ICE Corporation
SEATTLE, WASHINGTON

Circle No. 53 on Reader Service Card



Charles H. Rose has been appointed manager of the new factory branch and office of Payne Furnace Div., Affiliated Gas Equipment, Inc., at Houston, Tex. He was formerly sales manager of the Home Comfort Div., Joe Thiele, Inc.

Irving Bottner, treasurer of Lewyt Corp. and of Lewyt Mfg. Corp., has been named vice president of Tywell Mfg. Corp. He joined the Lewyt organization in 1942.

R. L. Hibbard has been appointed district manager of the Buffalo district sales territory for Cutler-Hammer, Inc. Hibbard had previously been branch manager in Saginaw, Mich.

John J. Fox has joined Kinney Mfg. Div., New York Air Brake Co., as vacuum systems en-

gineer for application of high vacuum systems in industrial processing. He was formerly assistant technical manager of Vacuum Industrial Appliances, Ltd., Glasgow, Scotland.

Walter A. Smith has been appointed director of purchasing of Servel, Inc. He succeeds S. L. Nicholson, who has resigned to go into business as a manufacturer's agent. Smith has been assistant purchasing agent of the Seeger Refrigerator Co. for the past two years.

Robert S. Stevenson, executive vice president of Allis-Chalmers Mfg. Co. since July, 1952, has been elected president. Stevenson succeeds the late William A. Roberts, who died April 12.

William E. Smith has been elected vice president in charge of purchasing of the Mitchell Mfg. Co. Smith has been with Mitchell since 1946 as director of purchasing.

R. C. Cash, sales representative for Wolverine Tube in Tennessee, Mississippi, Alabama and eastern Arkansas, has moved his headquarters from Memphis to Birmingham. Cash may now be reached through Wolverine's Decatur, Ala., plant.

COOLS SHOPPING CENTER

Worthington equipment will air condition 17 of the largest stores in the new shopping center in St. Louis Park, a suburb of Minneapolis. Equipment, sold to Knollwood Plaza Shopping Center through Spencer Air Conditioning Co., includes one centrifugal refrigeration unit designed to handle 255 tons of refrigeration, four compressor units, and 20 packaged air conditioners of varying capacities.

DISTRIBUTOR NAMED

New York-New Jersey Distributors, Inc., has been appointed the wholesale agency for York Corp. in 10 northern New Jersey counties and in an area centering at Poughkeepsie, N.Y. Richard L. Hughes is president of the agency.

NAMES HOUSTON OUTLET

J. A. Walsh & Co., Houston, Tex., has been named to handle Worthington Corp.'s packaged air

conditioning equipment for residential and commercial application. A well-known Houston appliance wholesaler, the Walsh firm will distribute Worthington equipment in the metropolitan Houston area.

DEALER APPOINTED

J. H. Buhrmaster Co., Scotia, N.Y., has been appointed a franchised dealer for Typhoon Air Conditioning Co., Inc.

SINCE 1910 MOTOR CAPACITORS BY C-D



For nearly 45 years experts in motor service maintenance have relied on Cornell-Dubilier motor capacitors. The earliest practical and efficient AC electrolytic motor start capacitors were developed by C-D. Motor designers and equipment manufacturers long ago recognized the "Consistent Dependability" of C-D motor capacitors. No wonder there are more C-D capacitors in use today than any other make!

Always insist on C-D—there's a right type for every motor. Ask your C-D distributor for your free copy of C-D's famous motor capacitor Manual and Catalog No. 163. He's listed in your classified 'phone book. Dept. CR 65 Cornell-Dubilier Electric Corporation, South Plainfield, New Jersey.



CONSISTENTLY
DISPENDABLE
CORNELL-DUBILIER CAPACITORS
PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE,
MASS.; PROVIDENCE AND HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; SANFORD AND
FUQUAY SPRINGS, N. C.; SUBSIDIARY, THE RADIANT CORPORATION, CLEVELAND, O.
THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 54 on Reader Service Card



the  ROYAL-AIRE ...your new "silent salesman"

Efficient in operation and smart in appearance, the all-new UNARCO ROYAL-AIRE may be this year's most profitable investment for you.

The ROYAL-AIRE is styled to fit into most any background. Four-way directional louvers, generous-sized components, and a large vertical cooling coil provide maximum dehumidification and cooling. The exclusive UNARCO pump-down control system guarantees instant cooling coil response and reduces system-operating pressures.

The ROYAL-AIRE is available in 5 full-rated models,

capable of conditioning exactly to *your* needs. It is especially adaptable to many different and normally difficult kinds of installations. Being "demountable" into three sections, it is extremely easy to handle and install.

Both to the contractor interested in building a reputation for quality, and to the buyer looking for efficient, dependable air conditioning...there is no better buy than the UNARCO ROYAL-AIRE.

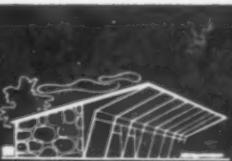
UNION ASBESTOS & RUBBER COMPANY
332 S. Michigan Avenue • Chicago 4, Illinois

the  ROYAL-AIRE ...a quiet, efficient AIR CONDITIONER

Circle No. 55 on Reader Service Card

AIR CONDITIONING SECTION

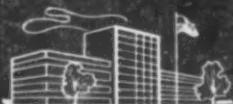
COOLING • HEATING • CIRCULATION AND HUMIDITY CONTROL



COMMERCIAL



INDUSTRIAL



INSTITUTIONAL



RESIDENTIAL

TABLE OF CONTENTS

Give Your Prospect a Choice	73
This Job Looked Tougher Than It Really Was	74
Hospitals Need Cooling as well as Heating	76
Air Conditioning Plays Key Role in Polio Vaccine	78
Reducing Solar Heat Load	80
Useful Air Conditioning Literature	82
What's New in Air Conditioning Equipment	86

THIS SPECIAL SECTION is devoted to all phases of Air Conditioning — Residential, Commercial and Industrial, including both self-contained packaged units and central-station type equipment for seasonal or year-round application.

It includes information on the merchandising, selling, installation and maintenance of Air Conditioning equipment, reports on the New Products which are being introduced in this field, and announcements of Literature available from manufacturers.

This section has been developed to afford our readers the convenience of being able to locate quickly all the information on Air Conditioning in each issue in this special section of COMMERCIAL REFRIGERATION AND AIR CONDITIONING.

HOW ONE CONTRACTOR BUILDS BUSINESS

submitting to the bidders on the general contract
quotation for the heating, ventilation, and air conditioning work
on the subject building in accordance with plans and specifications.
Also we are submitting an additional alternate plan based on our own
appraisal of the building's requirements. We feel that it will be
advantageous to the owner to consider this alternate.

SUBMITTING an alternate plan, along with the bid conforming to original specifications, is evidence of creative effort on the part of the firm entering the bid.

This contractor finds you can close more sales if you GIVE YOUR PROSPECT A CHOICE

WHEN quoting on bid jobs, always give the prospect just what he asks for—but don't stop there! In addition, give him an alternate quotation based on the sort of system or equipment which in your honest opinion will handle his job in the best possible way.

That's the policy followed by Roth Bros. Cooling & Heating, Inc., air conditioning and refrigeration contracting firm operated by Laverne G. King and Paul C. Menster in Youngstown, Ohio, whenever the firm has the opportunity of submitting bids for air conditioning, heating, or refrigeration installations on the basis of previously prepared plans and specifications.

"Most such plans and specifications," King points out, "are prepared by architects, mechanical engineers, or general contractors who don't have the benefit of a practical background of refrigeration or air conditioning knowledge or experience. They go largely by the engineering textbooks, and so while their specifications for any particular job might be technically precise they often are completely unrealistic in terms of practical application."

"That's why we frequently bid these jobs two ways," he explains. "First we satisfy the bid specifications by giving them exactly what they ask for. Then we add on an alternate bid based on the kind of installation that, in the light of our own knowledge and experience in this field, we think they really ought to have."

A typical letter of transmittal accompanying a bid submitted by the Roth organization might start off like this:

"We are submitting to the bidders on the general contract a quotation for the heating, ventilation, and air conditioning work on the subject building in accordance with plans and specifications. Also, we are submitting an additional alternate plan based on our own appraisal of the building's requirements. We feel that it will be advantageous to the owner to consider this alternate."

"Oftentimes," King declares, "it proves out that the alternate proposal which we suggest not only does a better job but also saves the customer money in the long run."

Continued on page 133

Window units were used
to cool this stone-walled
city hall when installation
of a central system was
deemed impractical



This job looked tougher than it really was

TAKE a 64-year-old building with external architecture like a castle-on-the-Rhine, with stone walls and partitions almost as formidable as one of Hitler's underground bunkers, and locate it in an area where summer temperatures run consistently at 100 F or more — and you'll have an air conditioning problem that may look far more difficult than it actually is.

The case of the city hall at Wichita, Kans., now comfortably air conditioned even when outdoors temperatures have soared as high as 113 F, presented just such a set of problems to Hysom & Associates, consulting engineers, plus one additional problem.

The supplementary problem was that the city commissioners of Wichita were unwilling to be extravagant with the tax-payers' money.

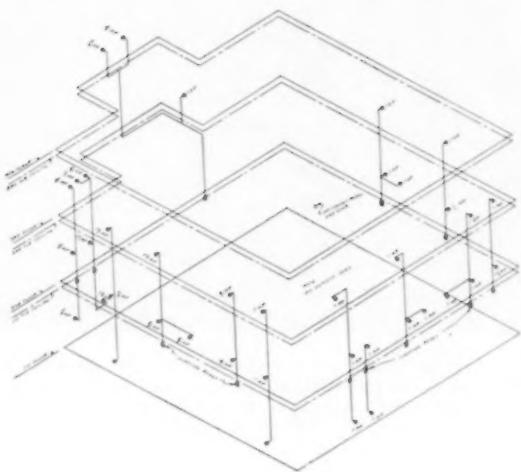
More specifically, the commissioners estimated that not more than \$70,000 could be allotted for air conditioning. But to completely air condition such a build-

ing with a conventional central system, it was estimated that the actual costs would run to about \$137,000, far too much if measured by new construction standards.

The building itself has four floors and an attic, each about 76 x 101', and each cut up into many rooms. Thus, the inside distances and the complicating factor of stonework constituted a problem too difficult to be solved economically by any system requiring ductwork or pipes. In addition, the task of drilling and pounding passage ways through masonry partitions would have caused noise disruptive to the building's occupants.

Having demonstrated to the commissioners that a central system would be impractical in such a structure, Hysom & Associates drew up an alternative plan.

Leave the fourth floor to be handled later by a separate duct-type system in the attic, they said. Then use a total of 37 hp, divided among 39 window-type conditioners, to solve the problem on the other three floors.



WIRING DIAGRAM for air conditioning the city hall shows how main lines were kept at one horizontal level while serving three floors from risers connected at junction boxes. This also reduced to a minimum the problem of penetrating masonry partitions.

The proposal to use so many window units caused the commissioners to wonder whether it would be necessary to keep all office doors closed, to prevent coolness "drifting" to cause an excessive amount in some areas, while leaving an inadequate amount elsewhere. The consulting engineers assured them that such fear was groundless, and subsequent experience has proved that Hysom & Associates were correct.

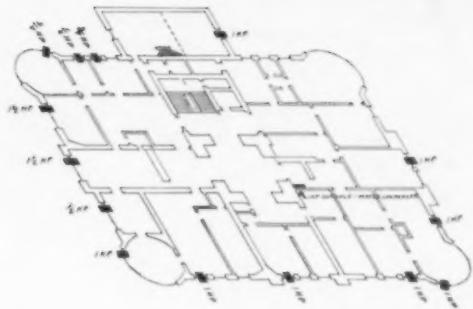
With the window units all using 208-volt single-phase current it was necessary, of course, to install a new network of electrical conduit. For this purpose, the main trunks were designed to follow the ceiling line of the first floor, chiefly along the perimeter. Junction boxes were located along this line wherever downward or upward take-off lines were needed.

Then the Hyde Furnace Co., which had won the contract, installed five $\frac{1}{2}$ -hp, eight $\frac{3}{4}$ -hp, twenty-one 1-hp, and five $1\frac{1}{2}$ -hp window units.

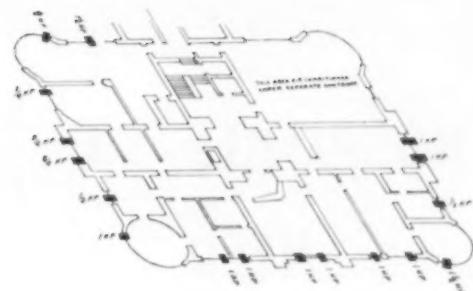
"Vornado" units were chosen for the job. Specifications had required compressor-type, hermetically sealed units, centrifugal supply fan, motor with thermal overload protection, evaporator and condenser coils with copper tubes and copper or aluminum fins, replaceable filters, and thermostatic controls.

Also, the commissioners had specified that the units should be installed without drilling into the building's marble window sills. This meant that the contractor was required to build special bases wherever required to allow the units to be located above steam radiators.

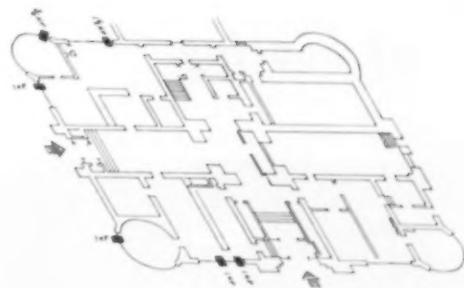
Continued on page 129



THIRD FLOOR

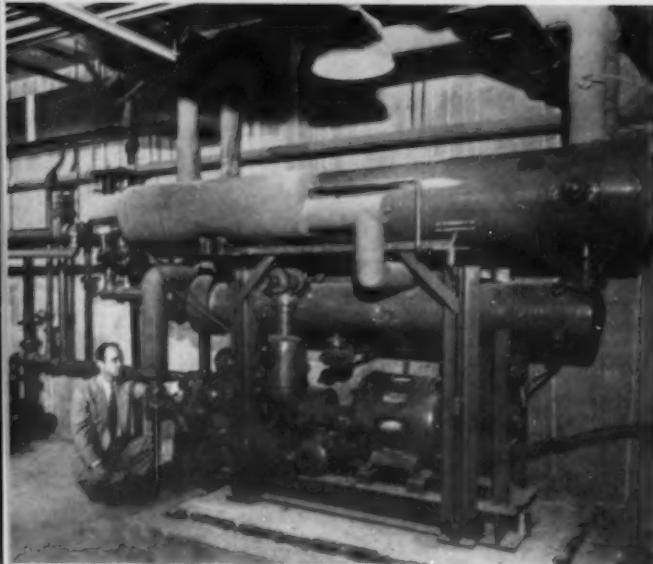


SECOND FLOOR

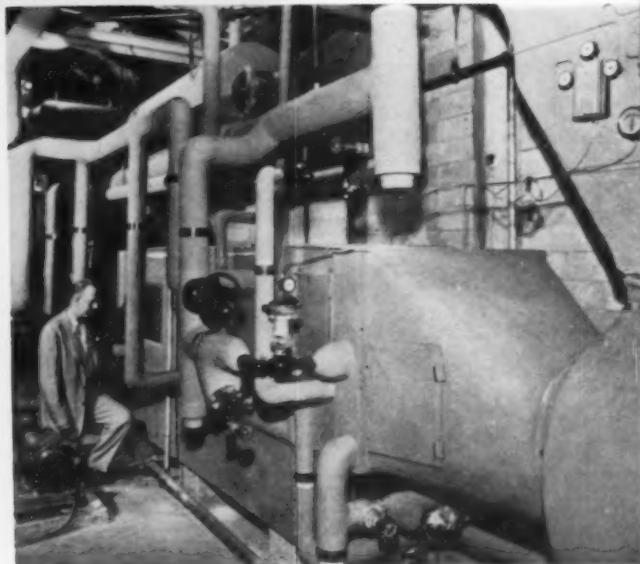


FIRST FLOOR

PLANS OF THREE FLOORS in Wichita city hall show where 37 window-type air conditioners were located. Public officials were pleasantly surprised when it was found that the provision for cooling these rooms individually was also efficient in providing comfortable temperatures for hallways and other interior areas.



WELFARE OF PATIENTS was the prime consideration in air-conditioning St. Joseph's hospital at Augusta, Ga. A dual-type, 40-ton capacity water chiller (left) is the starting point of this



installation for cooling and controlled humidity. At right is one of the two air-handling units used in this system; this one serves the operating room and X-ray department of the hospital.

HOSPITALS NEED COOLING *as well as heating*

PROOF again of the increasing importance which the medical profession is attaching to the many benefits of year-around air conditioning is the fact that a 40-ton all-season system was included in the original construction of Augusta, Ga.'s new St. Joseph's Hospital. This installation is further indication that cooling is coming to be regarded as important a factor as heating in hospital operation, particularly in southern climates.

In this modern hospital, operating rooms, X-ray and delivery rooms, the nursery, and pediatrics ward are maintained at ideal tem-

peratures in summer as well as winter, regardless of outside temperature conditions.

Heart of the central station duct system is a Chrysler Airtemp 40-hp dual radial water chiller. A network of large air ducts distributes the tempered air throughout the conditioned area.

In year-around operation, chilled water or steam is pumped to an air washer where the air is blown through for cooling or heating. The air then is passed over a reheat coil where proper humidity is maintained. From the reheat coil, the air is passed through an electrostatic air precipitating filter,



THERMOSTATIC CONTROL of hospital's operating room is explained to one of the sisters. During surgery, temperature here is kept at 80 F.

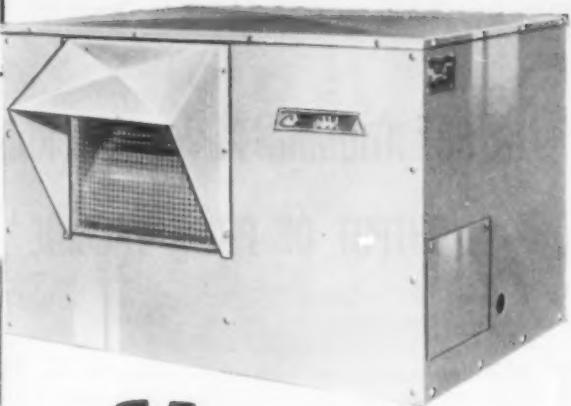


NEWBORN BABIES will not cry from heat discomfort in this air-conditioned nursery. Temperature here will be kept at 78 F; relative humidity at 50%.



Type 907
air-cooled
condenser

Type 908
air-cooled
condensing unit



Mueller Climatrol

ends your air-conditioning water worries

. . . with two new, remote, air-cooled units

Type 907 — Converts any water-cooled unit (employing gas-cooled compressor) to air cooling. Available in two-, three-, and five-hp sizes. Weather-proof, rubber-base finish, to permit outdoor installation. Type 907 uses Freon 12 in the 2-hp size; Freon 22 in the 3- and 5-hp sizes. Angle hoods for inlet and outlet openings are available as optional equipment.

Type 907 contains condensing coil, fan motor and centrifugal blower. It employs the compressor in the air-conditioning unit to which it is connected.

Type 908 — Available in two-, three- and five-hp sizes, complete with heavy-duty compressor, for installation with any remote coil unit. All Type 908 units use 1100 CFM/ton condenser air flow and operate efficiently in ambients up to 110° F — considerably above average. The refrigerant is Freon 12 or 22.

Like the Type 907, the 908 has a weather-proof, rubber-base finish, to permit installing outside. Angle hoods for inlet and outlet openings are available as optional equipment.

Yes, regardless of the water conditions in your area, cooling can be a big, profitable part of your business. With Mueller Climatrol's complete line of equipment, you have a size and type for almost every installation. Get detailed facts and figures on these two new Mueller Climatrol condensing units now. Write Mueller Climatrol, Dept. 145, 2056 W. Oklahoma Ave., Milwaukee 15, Wisconsin.

D-189



NEARLY 100 YEARS OF MANUFACTURING QUALITY COMFORT EQUIPMENT

AIR CONDITIONING PLAYS KEY ROLE IN OUTPUT OF POLIO VACCINE

THE critical role air conditioning has played in the desperate rush to mass-produce Dr. Jonas Salk's history-making anti-polio vaccine has been revealed by Carrier Corp., which supplied special equipment for Dr. Salk's Tissue Culture Laboratory and for Eli Lilly and Parke-Davis.

Precision control of temperature, humidity and purity of air proved an essential key in the monumental task of bringing the new wonder substance to market at such an early date.

The basic air conditioning problems were absolute prevention of contamination which could have upset tests or production and maintenance of body temperatures in solutions where tissues and virus are artificially grown.

Early in 1953 when Dr. Salk's research began looking toward production of the vaccine on a massive scale, it became necessary to employ thousands of test tubes and slides in growing and preparing tissues and virus and analyzing the results.

"Keeping the test tubes alone sealed tightly against contaminating bacteria, yeast and mold found in ordinary air would have slowed down their work considerably," William Bynum, Carrier executive vice-president, said.

A special Carrier system was designed and installed which pressurized the room against infiltration of outside air, and subjected the conditioned air supply to five separate purifications by filtering. At the same time humidity was held at a low level to prevent contamination of slides, tubes and other equipment by perspiration.

Break-neck speed in supplying equipment to hurry up the job was a prime element in all of the air conditioning installations. In Indianapolis, Eli Lilly & Co. converted an entire five-story building to polio vaccine production in less than 90 days.

Here, incubating rooms where tissue cells are grown in enclosed vats and where the strains of polio virus are planted and reproduce on the living tissue cells, special air conditioning is used to maintain temperature of 98.6 degrees. Cooling is necessary most of the time, because of the heat from dozens of motors used to agitate the vats.

Once the virus strains are grown they are held in rooms where a battery of cold diffusers provides a temperature of 40 F. They are then tested for potency, and strained through filters before being activated for use as a vaccine.

In these processing areas, as in the final mixing, testing, and packaging operations, air conditioning is used as one of the important weapons against airborne contamination.

Vaccines produced in Dr. Salk's Tissue Culture Laboratory were used for the initial research on polio prevention in the Pittsburgh area. Production by such companies as Eli Lilly made possible the mass nationwide tests last year and the large supplies which were ready for use when the efficacy of the vaccine was recently announced.

then into the central air distribution system.

In the winter cycle, a humidistat located in the exhaust duct resets a dew-point thermometer (normally set at 61 F) to produce the desired humidity, which is 55% in the operating and delivery suites and 50% in the nursery, X-ray and pediatrics areas. It regulates the re-heater steam valve, which oscillates from 3 to 6 pounds, while holding the cooling valve closed to cooling water. When outside air temperature descends below 70 F, the outside thermostat resets the delivered air thermostat to 68 F in the winter, which regulates the reheat valve.

Air Can Be Reheated

If necessary, the air is reheated by the booster coil, which is controlled by one of the seven room thermostats, through a valve to maintain 76 F dry-bulb. As either drybulb or humidity conditions vary, the system automatically switches over to summer control.

In the summer cycle a humidistat resets the dew-point thermostat to a lower temperature, which causes a valve to close as water pressure increases to 7 pounds. Thereupon the controls are actuated to start the air conditioning equipment and open a three-way valve, oscillating from 7 to 12 pounds, to cooling water, thus maintaining dew-point and relative humidity.

Outside Air Is Factor

When the outside air thermostat reaches 78 F, it resets the discharge thermostat to 63 F, which regulates the reheat valve.

If necessary, the air is then reheated by the booster coil under the control of one of the seven room thermostats through the valve to maintain 78 F. If the equipment is not capable of maintaining this temperature due to temporary excessive local conditions, it will be out of control on drybulb. But even under such maximum conditions, a room temperature of 80 F will not be exceeded.

Continued on page 133

stock up **NOW** on Sprague Capacitors

... BEFORE THE SUMMER SERVICE RUSH

A FEW MINUTES spent rounding out your capacitor stock today can save you hours of time picking up replacements when the heat is on. And you'll get additional benefits if it's Sprague capacitors you stock. You'll waste no time on the job, because they're the easiest motor capacitors to install. And you'll lose no profits on costly call-backs, because Sprague capacitors are the most dependable made.

JUST COMPARE THESE PROVEN FEATURES!

- CHOICE OF METAL OR PLASTIC CASES — replacements for practically every modern motor.
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- BROAD RANGE OF STANDARD CAPACITANCE RATINGS AT ALL VOLTAGES — 110, 125, 160, 220, 320 volts, no waiting for special orders.
- SPECIAL MOUNTING HARDWARE — for neat and professional-looking replacement jobs.

GET THE FACTS ON SPRAGUE COMPLETE CAPACITOR SERVICE

Cash in now on the Sprague 3-step method for easier, faster, better, motor capacitor service work. When motor capacitors fail: (1) find the fault quickly with the Mike-O-Meter capacitor checker and analyzer; (2) Restore service immediately with the Cap-Subber capacitor substitute; (3) Cure the trouble permanently with dependable Sprague replacement capacitors. Manual C-910 has all the facts. Write for your free copy to Sprague Products Company, 53 Marshall Street, North Adams, Mass.



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Sprague Products Co. is the Distributors' Division of the Sprague Electric Co.

Circle No. 58 on Reader Service Card

& AIR CONDITIONING • JUNE, 1955

Here are several ways to boost
air conditioner capacity by . . .

REDUCING SOLAR HEAT LOAD

by Edward Dowis

AN Ohio contractor recently reported successful operation of a 3-ton conditioner in a residence carefully estimated for a minimum of 5 tons. This was accomplished by ventilating the attic to remove excessive ceiling load, due largely to solar radiation. Other studies indicate that reduction of installed capacity by as much as a ton, even in a small residence, may be possible by keeping solar gains to a minimum. By this same means, improved conditions and lower operating costs can be achieved in buildings with air conditioning already installed.

Solar load differs in several important aspects from those loads due to conduction, people, utilities and ventilation. Understanding of these differences usually will indicate ways to reduce the total load. Important among these characteristics of solar load are the following:

1. Radiant rays are readily reflected.
2. These rays may be kept out by shielding or shading.
3. Solar radiation is closely related to color.
4. There may be a time lag between maximum solar intensity and transfer to room surfaces.
5. Latitude and angular position of walls materially affect solar loads.

A plane surface, perpendicular to rays of the sun, may receive total radiation as much as 420 Btu per hour per square foot. Practically, this will be greatly reduced by atmospheric refraction (bending of the rays) and reflection. Reduction of solar load consists in deflecting or reflecting as much radiant energy as possible or removing it before it gets to the conditioned space. When it can not be eliminated, transmission may be retarded so that the heat does not reach inside surfaces at the same time as the peak total load.

A most obvious method of keeping solar heat from a building is to intercept it by placing an opaque object in its path. When rays strike any surface, part of the energy is absorbed, to become sensible heat and the rest is reflected back to the atmosphere or to some other object.

Angle of Reflection Is Important

Solar rays are reflected about as a rubber ball would bounce off the surface after striking it. When the rays are perpendicular, as in Figure 1, they are reflected back in an opposite direction. During the early morning or late afternoon they strike at a different angle and bounce off at the same angle, as indicated in Figure 2.

Reduction of load is accomplished by providing reflecting surfaces which will absorb a minimum amount of heat and removing this absorbed heat before it reaches the conditioned space. When laying out a new building or remodeling an old one, roof pitch, wall positions, porch and carport locations, and window distribution should be planned to take advantage of angular reflection and shading at the time the total load is apt to be greatest.

Ventilation of attic space will remove much of the heat collecting there due to roof absorption. Air may also be drawn through hollow spaces in walls to advantage. Insulation of walls and ceilings will both delay the time and reduce the quantity of heat received.

Windows with direct sun exposure should, of course, be protected by awnings, inside or outside venetian blinds, roll shades or drapes. Reduction in solar transmission, as compared to an unshaded window, will be about as follows:

Canvas awnings	75%
Outside slat awnings	60%
Roller shades, fully drawn	55%
Roller shades, half drawn	30%
Venetian blinds	20-40%

The angular pitch of venetian blind slats has an appreciable effect on transmission. Rays may pass through slots or be reflected from slat to slat back into the room. Fixed slat awnings should be designed and adjustable shades set for maximum reflection at the time of peak heat load. Fixed slat shades are usually set at 45 degrees.

Reflecting screens are in common use, constructed with wire cloth having horizontal members in the form of very narrow slats to reflect radiation. They must be installed so that slats pitch downward from inside,

the solar rays striking outside and being reflected outward. These are recommended wherever other methods of shading are undesirable.

Proper use of color can effect surprising savings in air conditioning loads. It is well known that light colors reflect and dark ones absorb heat. Manufacturers of air cooled refrigeration condensers coat them black to increase the overall heat transfer even though conduction resistance is greater. There is no perfect reflector, but light colors reflect a very high percentage of rays received. A black roof may absorb as much as 75% of the rays received. This may be reduced to 6% by coating with aluminum, the other 94% being reflected. A hard, glossy surface is also a better reflector than a dull one.

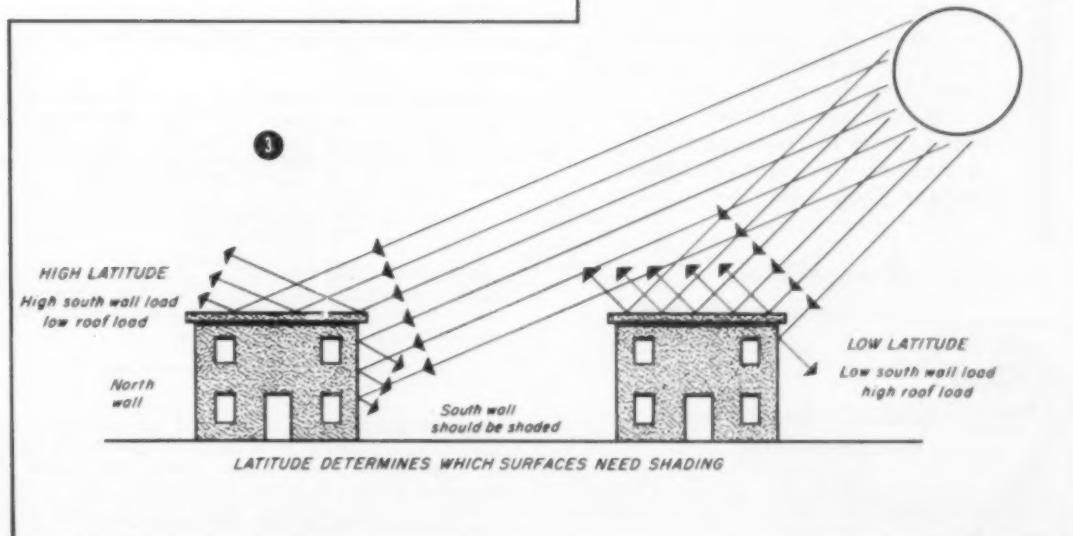
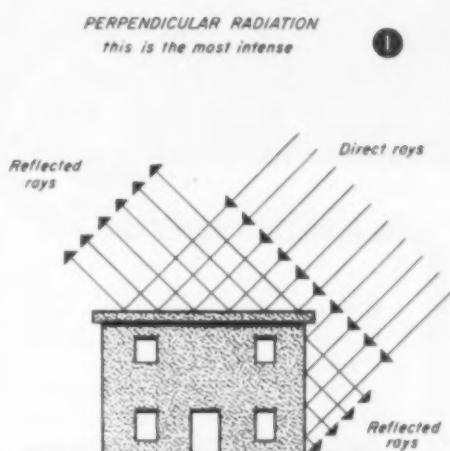
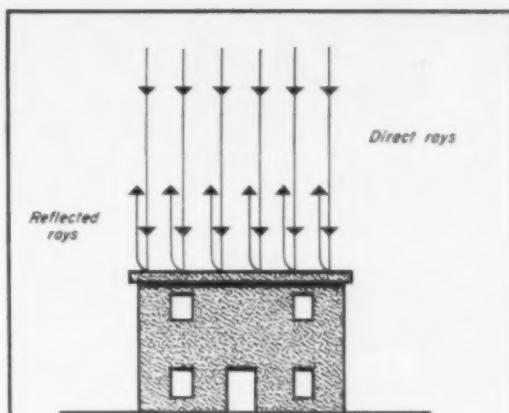
Use of Light Colors Recommended

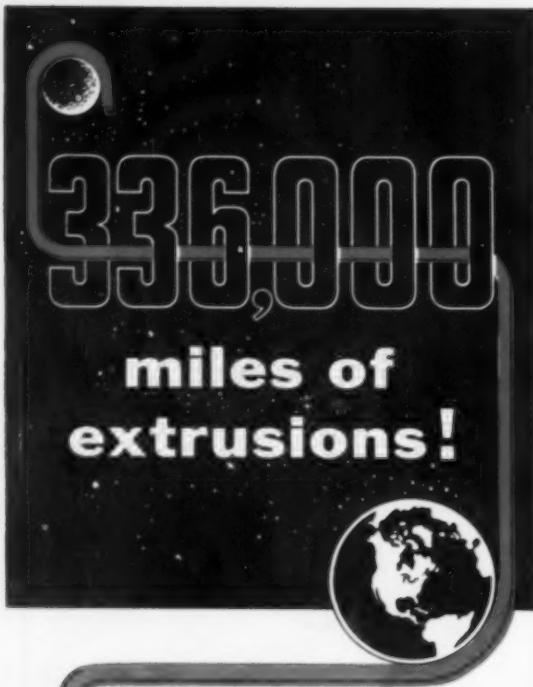
Light colors should be used, both inside and out, insofar as the decorative scheme will permit. This is particularly true of window shades. Dark shades are almost useless from a thermal standpoint. It is worth remembering that cleanliness of light walls has an appreciable effect upon solar reflection.

The effect of solar load on performance of air conditioning equipment is determined largely by the time this energy reaches the interior of the building. Radiation through glass is practically instantaneous and is so estimated. That through walls and ceilings may not be felt until sometime after maximum intensity of rays on outside surfaces has passed. Not all absorbed heat gets inside, since some of it will be conveyed to the outside air when surface temperature rises above that of the air.

Walls of average construction have a transmission delay of about two hours. Very heavy walls may transmit only a negligible load, as by the time heat can

Continued on page 95





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WABASH - INDIANA

82

Circle No. 57 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

AIR CONDITIONING MARKETS are analyzed and tremendous growth in total sales is predicted in an impressive brochure issued by Mitchell Mfg. Co. Titled, "There's Big Money in the Air," the publication claims numerous dealer advantages in handling this company's equipment, describes various sales-building aids provided, and illustrates several models in the line.

Circle No. 141 on Reader Service Card

A WATER COST FORMULA is among the features of a new eight-page catalog bulletin (No. 700) issued by Acme Industries, Inc. The formula applies to costs that occur when discharge water from air conditioning or refrigeration is not re-used. Operating costs with an "Acme" cooling tower also are provided for comparison. The catalog illustrates the construction and operation of these towers in ranges of 15 through 100 tons.

Circle No. 142 on Reader Service Card

ELECTRICAL TIME SWITCHES are the subject of a bulletin (No. 155) for contractors issued by Tork Clock Co., Inc. Compressed into four pages, this information describes a wide variety of switches and their appropriate use. Included are detailed references to dials for special application such as daily on-off, astronomical for sun-time relationships, skip-a-day, and for seven-day with multiple on-off scheduling.

Circle No. 143 on Reader Service Card

DETAILED INFORMATION on the new "Marlo" line of coil-type spray dehumidifiers is contained in an eight-page bulletin (No. 3754) issued by Marlo Coil Co. The dehumidifier units, Model SD, are available in 327 sizes, with air volumes from 600 to 76,000 cfm.

Circle No. 144 on Reader Service Card

AIR CONDITIONER FOLDER is offered by Refrigeration Engineering, Inc. on its new "Recold" model RE conditioner designed for motels, hotels, and residential use. These units cool, heat, dehumidify, filter, and ventilate. They are available in three sizes for direct expansion refrigerant or chilled water.

Circle No. 145 on Reader Service Card

DIVERSIFIED APPLICATIONS of electronic air cleaning equipment in a typical large city are described in words and pictures in an eight-page booklet, "The Philadelphia Story," issued by Triton, Inc.

Circle No. 146 on Reader Service Card

TYPES OF BLOWERS for heating and air conditioning are described in a two-page folder issued by Morrison Products, Inc. Information includes graphs, tables, and details of components.

Circle No. 147 on Reader Service Card

(More Air Conditioning Literature on page 84)



DO YOU KNOW WHY
YOUR SUBSCRIPTION TO THIS
MAGAZINE IS PAID FOR YOU?

You're Chosen Because You Qualify!

COMMERCIAL REFRIGERATION & AIR CONDITIONING readers are carefully selected by progressive independent wholesalers of refrigeration and air conditioning parts and supplies because they are 100% interested in the merchandising, sale, installation and maintenance of refrigeration and air conditioning equipment.

COMMERCIAL REFRIGERATION & AIR CONDITIONING is sent **only** to qualified readers. COMMERCIAL REFRIGERATION & AIR CONDITIONING goes to persons whose specifying and/or buying responsibilities are guaranteed by local refrigeration and air conditioning equipment wholesalers.

Your local parts wholesaler, who **knows** your interest in refrigeration and air conditioning, who **knows best** your buying habits, who **knows most** what you like to read—pays us for your subscription to COMMERCIAL REFRIGERATION & AIR CONDITIONING.



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Commercial Refrigeration & Air Conditioning

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Hit the "Small" Market
for Big Profits
with the
Lipman Line



There's big profit in selling the small tavern or restaurant on the advantages of a Lipman Ice Boy. The small operator can get enough ice tips for his needs—when he needs them—with either the LC-25 or LC-40 Ice Boy. And what's more—he can get either of these machines for an investment that's within his reach—less than the cost of a refrigerator, for instance. Start cashing in on Ice Boy sales to the small market in your area. For further information on the complete Lipman Line, write Lipman Division, Yates-American, Beloit, Wisconsin.



LIPMAN ICE BOY MODEL LC-40



For the larger bar, restaurant, or cocktail lounge. Slightly larger than the LC-25—but delivers more ice tips. Up to 1700 per day, if needed. And storage space holds over 900 ice tips to cope with rush hours. Dial-a-size Control Unit to select the size ice tip needed.

LI-BO-1



...a division of *Yates-American*

Circle No. 59 on Reader Service Card

84

AIR CONDITIONING LITERATURE . . .

Continued from page 82

AIR CONDITIONERS AND COMPRESSORS manufactured by Frick Co. are described in four-page folder issued by this firm. Various sizes of multi-cylinder "Eclipse" compressors are listed and pictured, with dimensions and performance ratings. Similar data is supplied for 3, 5, and 7½-ton unit air conditioners. Diagrams show typical installations. Other products including valves and finned pipe are also described.

Circle No. 148 on Reader Service Card

CONSTRUCTION DETAILS of its air conditioning instruments are described in a four-page folder (No. 214) issued by Ellison Draft Gage Co. These air gages compare the pressure in front of and behind the filters installed in conditioning systems, showing when cleaning or replacement are required. Methods of installation are also described.

Circle No. 149 on Reader Service Card

CATALOG SHEET issued by Drayer-Hanson, Inc. illustrates and describes concealed and console models of "Spotaire" individual room air conditioners. Dimensional sketches and a table of capacities are included. Each model is made in sizes for 200, 400, and 600 cfm. Quiet operation and non-radio interference of motors is stressed.

Circle No. 150 on Reader Service Card

WATER TREATMENT to deal with scale, rust, slime, and algae encountered in refrigeration and air conditioning, is described in a leaflet available from Atlantic Chemical & Equipment Co. The company's products include "Ace" condenser cleaner, condenser treatment block, and ice machine cleaner.

Circle No. 151 on Reader Service Card

(Turn to page 102 for more Useful Literature)

**NOW . . .
an improved
spray nozzle**

ASPIR-JET



Manufacturers of atmospheric cooling towers and air conditioning contractors are switching to Aspir-Jet nozzles. Reason: tremendously increased water break-up and distribution, and longer nozzle life.

These nozzles are designed so that air is mixed with water as the water leaves the nozzle. Aspir-Jets work efficiently on pressures as low as one-half pound. Injection moulded of butyrate plastic they do not corrode or erode. Made in three sizes—3, 5 and 7 gallon per minute capacities.

- Available through Refrigeration and Air Conditioning wholesalers.

*Manufacturers & Refrigeration Wholesalers:
if you are not now using or stocking this astounding
new product, wire or write*

THERMAL AGENCY

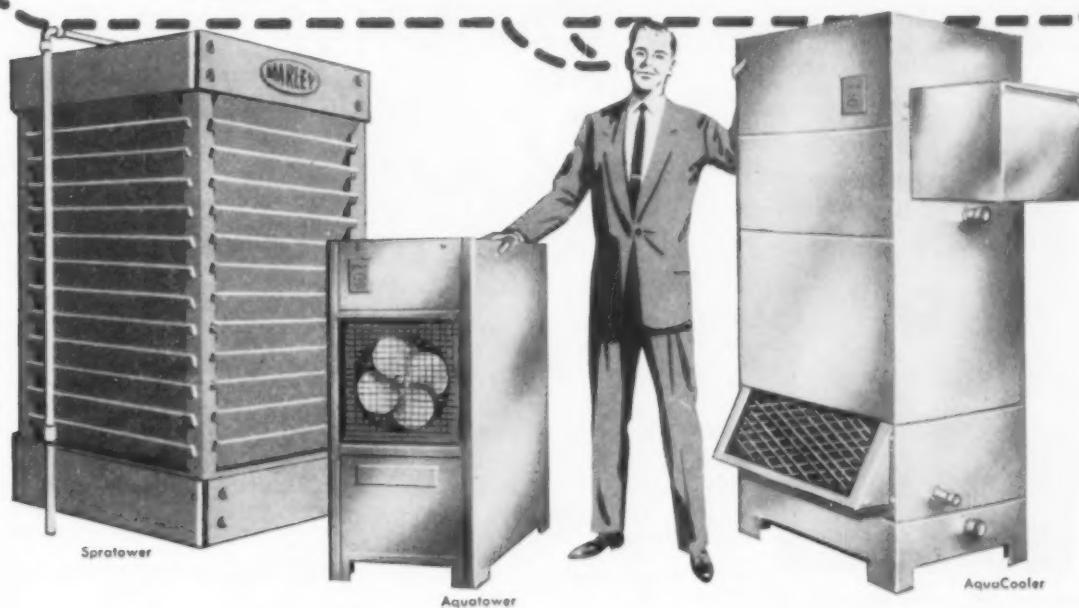
National Sales Agents
THERMAL BLDG. • 1515 DALLAS • HOUSTON, TEXAS

Circle No. 109 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

"MARLEY Cooling Towers are Professional Products sold only

through professional channels"



No doubt about it—from the standpoint of engineering, Marley cooling towers are "tops". And to make sure that the ultimate user receives all the benefits of this excellent engineering, Marley distributes its towers only through professional channels.

Selecting, sizing, installing and servicing cooling towers are all jobs that require technical training, skill and know-how. That is why Marley cooling towers reach the user only through you—the air conditioning engineer and contractor; that is why they are installed and serviced only by your experienced mechanics.

Marley does more than any other manufacturer to help you select, install and service cooling towers. Marley products are engineered for the easiest possible installation. Marley Sales Engineers (all technically trained specialists) in 55 cities are always available for advice and assistance. The company provides complete technical manuals on every Marley tower.

For further assistance, Marley publishes "Packaged Cooling Tower Know-How", a comprehensive brochure on installation that tells and shows how-to-do-it, as well as when, where and why. Write today for your free copy on your company's letterhead.



The Marley Company

Kansas City, Missouri

WHAT'S NEW

in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

(For more New Products turn to page 105)

Floor Type Units

Product: Packaged commercial air conditioning units.

Manufacturer: American Blower Corp., Detroit, Mich.

Features: Conditioners are available in 3, 5, 7½, 10, and 15-ton sizes for cooling, and may be provided with steam or hot water coils for heating. Height is about 8" less than



common, but curved blades of diffuser grille direct air upward and give it desired turbulence. Two smallest sizes can be shipped fully assembled. All sizes use water-cooled condenser, have Fiberglas insulation, and are finished in Leather-tex tan. Each unit has four horizontal sections with separate removable front panels. Upper (plenum) section can be omitted where a direct duct installation is desired. Circle No. 121 on Reader Service Card

Home Thermostats

Product: New line of heating-cooling and cooling-only thermostats with round fronts.

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Features: Models T-87A and T-87C provide finger-tip regulation of cooling. T-87A also provides manual selection of heating or cooling. Snap-on plastic covers may be painted or papered. Switches, mounted on a sub-base, give a choice



between automatic cooling and shut-off; heating, cooling, or shut-off; cooling shut-off and constant or intermittent fan operation. Sub-bases are mounted separately. Dust-proof, sealed mercury switch is used in both models.

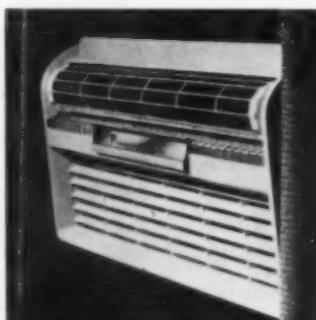
Circle No. 122 on Reader Service Card

New Conditioners

Product: Three new lines of "Fresh'nd-Aire" conditioners.

Manufacturer: Cory Corp., Chicago, Ill.

Features: Three lines, all window-type, will be flush mounted, push-button, electromagnetic. Deluxe series will have eight controls, with factory-installed heater and thermostat. Units will be in ½, ¾, 1, and 1½-ton sizes. Custom series will have



four controls. Automatic thermostat will be available for field installation. Units will be in ½, ¾ and 1-ton sizes. Standard series will have three controls, and thermostat for

field installation. Units will be ¾, 1, and 1½-ton sizes. Mounting of all lines will provide for cabinet to extend into room less than three inches. Companion line of in-wall units is also available in ¾ and 1-ton sizes.

Circle No. 123 on Reader Service Card

Lifting Hand-Truck

Product: Model A-2 hand-truck for hauling and positioning window coolers and other appliances at above-floor levels.

Manufacturer: Fairbanks Co., New York, N.Y.

Features: One man can install and service heaviest of window air conditioners by using built-in lift device of this truck. Unit is also helpful on stairways, and doubles for ordinary hand-truck purposes. Upward lift, gear-operated, extends to 43" above floor. Unit folds com-



pactly for between-jobs storage, and weighs only 49 lbs. Company also manufactures "Stairmaster" hand-truck for movement of heavier appliances, especially up or down steps.

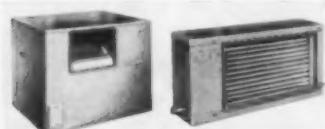
Circle No. 124 on Reader Service Card

Air Conditioner

Product: Separate cooling coils and condensing units for dust systems.

Manufacturer: Thatcher Furnace Co., Garwood, N.J.

Features: New line, air-cooled, added to previous water-cooled models, provides remote located con-



densing units in 2, 3 and 5-hp sizes with built-in blower. Separate cooling coil units are in sizes to match, and are ready-flanged for installation in ductwork. For systems in which blowers are needed with cooling coil, a blower-coil assembly is also to be added to the line. Condensing unit can be installed indoors or out. Coil can be set practically

anywhere in the air supply system. Flexibility of installation makes this equipment especially suited to commercial applications where space is at a premium. For systems where blowers are required with the cooling coil, a housed blower coil assembly is available.

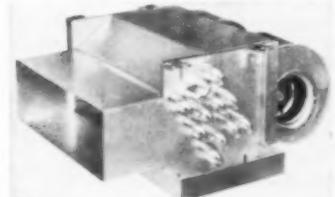
Circle No. 125 on Reader Service Card

Ceiling Evaporator

Product: "Hideaway" remote model evaporator designed for installation in small areas near ceilings for air conditioning installations.

Manufacturer: International Mfg. Co., Oklahoma City, Okla.

Features: Unit is only 11" high and requires no additional ductwork. It is individually controlled by wall



switch but operates from a central chilled water system. All-aluminum construction is used. Motor-blower assembly may be easily removed. Unit is particularly suitable for hotels and office buildings.

Circle No. 126 on Reader Service Card

Air Meter

Product: "Anemotherm" portable air meter.

Manufacturer: Anemostat Corp. of America, New York, N.Y.

Features: Meter gives instantaneous direct readings on air velocity, temperature, and static pres-



sure, for use in heating and air conditioning systems. It measures velocity from 10 to 8000 fpm in increments as small as 5 fpm; temperature to 225 F with accuracy of about half a degree; static pressure in water-inches from 0 to 8 negative,

and positive with a sensitivity of better than .05" at lower range. Unit is contained in a convenient carrying case, and is suited for both field and laboratory work.

Circle No. 127 on Reader Service Card

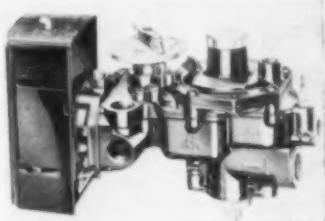
Gas Fire Controls

Product: Model 55 "Gasapack" basic control unit for gas heating systems, and three types of thermostatic accessories.

Manufacturer: A-P Controls Corp., Milwaukee, Wis.

Features: Basic control is Gasapack unit which includes built-in

pressure regulator, pilot filter, automatic pilot, and main and pilot shut-



offs. Three types of accessories are: Model 55 MTS modulating snap thermostat; Model 55 MT modulat-

1 man + Bonney X-4 = 4 men



It's the new BONNEY "X-4"—the amazing, muscle-saving 4-to-1 Geared-Head Wrench! Now, 1 man can do the job of 4 in all heavy assembly and disassembly work! In tightening or loosening threaded parts, there is no dangerous snap or jarring action. The Bonney X-4 makes tough jobs easy!

The new BONNEY "X-4" is designed as an *intermediate unit* for use with ratchets, torque wrenches, sockets, and attachments. Rugged, lightweight, portable—the unit is easily used in shop or field. A mechanic can do his own work with less effort, greater safety, with no chance of damaging equipment.

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Allentown 6, Pennsylvania

Please send me detailed information on the new BONNEY "X-4" 4-to-1 Geared-Head Wrench.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 61 on Reader Service Card

Sell the LEADER New **SUPER-SELL** Displays by



New Design



Super-Sell Frozen Model
for Frozen Food

More Capacity



Super-Sell Meat Display —
obtainable with superstructure.

Volume Display



Super-Sell Vegetable Cases, Top
Display or Double Duty Models.

COLORS TO MATCH STORE DECORATION!

Write for Colorful Catalog and Prices

FEDERAL REFRIGERATOR MFG. CO.

618 Elizabeth St., Wausau, Wisconsin
Post Office, Bellville, Wausau, Wisconsin

Circle No. 62 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

ing thermostat; and Model 55 ET electric thermostat. Basic unit has standard thermo-magnetic safety pilot, with safety shut-off protection. Silent operation is provided and unit is impervious to all gases. Model 55 ET thermostatic mechanism, obtainable separately, is attached to basic unit and is accompanied by kit including plug-in transformer, wall thermostat, and wiring diagrams. Model 55 MTS is operated by sensitive thermo-bulb in an extension capillary tube. Model 55 MT is operated with a self-contained thermo-bulb. Choice of automatic accessories makes it easy to select most suited combination for either factory or dealer installation.

Circle No. 128 on Reader Service Card

cooling, and from 10,400 to 16,000 Btu for heating. Cabinets may be



Year-Round Units

Product: "Dual Conditioner" heating-cooling, individual room conditioners for baseboard installation with wet-type systems.

Manufacturer: Circle Air Industries, Inc., Brooklyn, N.Y.

Features: Unusually low height makes these units neat and inconspicuous. They use piping circuit for both heating and cooling, supplied by boiler or water-chiller according to season. Thermostats may be built-in or wall-mounted. Sizes range from 5400 to 7900 Btu in

completely recessed. Each unit is its own zone control. The system will not be thrown out of balance if some units are shut off.

Circle No. 129 on Reader Service Card

Baseboard Diffuser

Product: "Air-Trim" warm air baseboard diffuser.

Manufacturer: Vulcan Radiator Co., Hartford, Conn.

Features: Unit distributes warm air from single duct outlet over ex-

Improved Visibility



Super-Sell Two Deck All Purpose
Package Meat or Dairy Case

Matching Colors



Super-Sell Triple-Deck
Dairy Merchandiser.

ONE LOOK at the dynamic new SUPER-SELL Line, and you'll realize why it's the year's "Leadership Line" — in design, beauty, capacity, display appeal, advanced engineering, and performance. It adds up to your most profitable franchise! Write or wire for details.

You're Sales-Wise
to Standardize--
Store-Wide--on
Federal!

NEW! 8-10-15 TON

Janitrol

PACKAGED COOLING

**With Custom Quality For
Commercial-Industrial Installations**

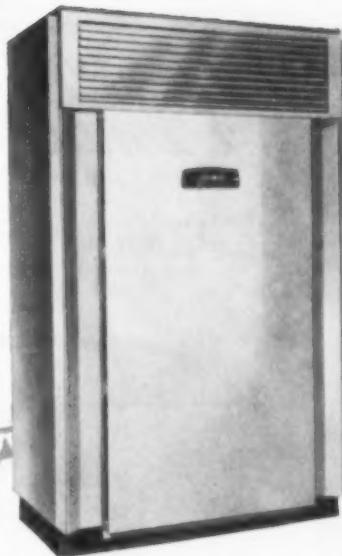
10 & 15 TON MODELS

Featuring two-stage cooling with twin refrigeration circuits. One circuit operates on mild days . . . both for the hot days. Controlled sequence starting of the two compressors reduces electrical starting load close to 50%. Both models provide for any of 10 possible variations for air return and outlet locations.

All units give many of the benefits of custom design with packaged unit convenience.

8-TON MODEL

A modern, attractive unit, compactly designed to save floor space. Cabinet includes return air inlet and outlet . . . internal filters eliminate accessory filter section. Air outlet grille is interchangeable for discharge from either front or top. The sealed, water-cooled refrigerant system is rated at 96,000 Btu. hr.



Check these quality features!



- **MAXIMUM OPERATING ECONOMY** is assured by the refrigerant-cooled motor and hermetically-sealed compressor. Many minor adjustments and maintenance costs are eliminated.

- **LARGE CAPACITY COOLING COILS** are mounted at an angle to give maximum cooling surface. Rapid draining of condensate minimizes re-evaporation.

- **QUIET OPERATION** is assured by powerful, slow-speed blowers. No moving parts are attached to the fully-insulated cabinets.

- **HEATING COILS** are available for year 'round conditioning. Either steam or hot water coils may be installed on leaving side of the evaporator.

- **DUCT HEATERS** may also be tied in. Also 2, 3 and 5-ton vertical and horizontal cooling conditioners available. All coolers supplement a complete line of gas-fired Janitrol heating equipment.

Janitrol
HEATING AND AIR-CONDITIONING
DIVISION

CONTRACTORS: Write for complete specifications on the Janitrol Cooling Line. Packaged models from 2 to 15 tons.

SURFACE COMBUSTION CORP. • COLUMBUS 16, OHIO • In Canada: Alvar Simpson Ltd., Toronto 13.
Circle No. 63 on Reader Service Card

& AIR CONDITIONING • JUNE, 1955

tended wall areas, and is designed to eliminate streaking and scorching. It is available in 2, 4, 6, 8, and 10-ft. lengths.

Circle No. 130 on Reader Service Card

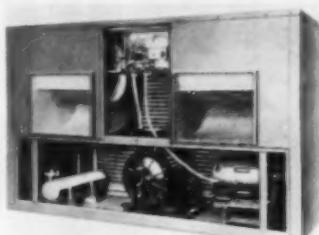
Remote Condenser

Product: Air-cooled condensing unit in 5-hp size for remote-type air conditioning systems in commercial buildings and large homes.

Manufacturer: U.S. Air Conditioning Corp., Minneapolis, Minn.

Features: Unit includes compressor, motor receiver, and condensing coil. Copper tubing carries

refrigerant to cooling coil or coil and blower combination in duct of

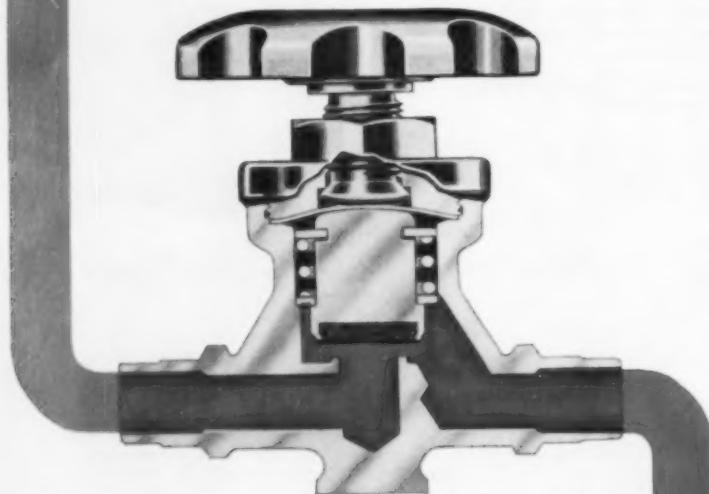


air distribution system. Condensing unit may be installed wherever air for it is adequate circulating. Can be used to provide cooling alone or

to convert an existing warm air heating system to all-year operation. Circle No. 131 on Reader Service Card

A longer-life line!

The valve that has all the inherent rugged qualities needed for tough, in-line, use. You'll find that the construction—from the precision internal parts to the husky brass body—will serve you best under all conditions.



Metal-to-metal backseat

Operates under normal pressure, in reverse flow

"Suprex" long wearing seat insert

Multiple metal diaphragms

Silver solder without removing internal assembly

Your line is as efficient as the valve you use . . . remember to ask your wholesaler for Superior Line Valves

Superior

valve and fittings co.

Pittsburgh 26, Pa.

Circle No. 64 on Reader Service Card

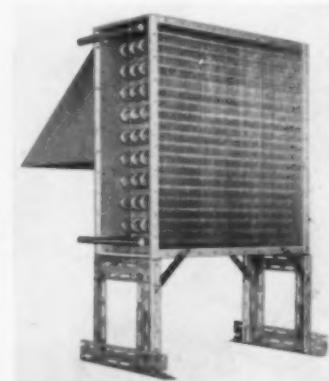


Condenser Series

Product: "Hi-F NW" series of air-cooled condensers in sizes up to 10-ton capacities.

Manufacturer: Peerless of America, Inc., Chicago, Ill.

Features: Operate without water and are available for indoor or out-



door installation in connection with remote systems. Units only made to 10 tons in size, but stands are available for accommodating multiple units up to 40 tons. Simple and economi-

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Clip and Save for Ready Reference

"Genetron" Super-Dry Refrigerants are made by General Chemical Division, Allied Chemical & Dye Corporation, one of America's great producers of industrial and scientific chemicals for more than 50 years. Long a leader in fluorine chemistry, General has the mines, resources, reserves, experience and production facilities that make it a reliable source of fluorinated hydrocarbon refrigerants.

Careful control in the manufacture of "Genetron" refrigerants guarantees products of the highest quality, extremely low in moisture and other impurities. "Genetron" Refrigerants are identical and interchangeable in all respects with comparable fluorinated hydrocarbon refrigerants produced by any other manufacturer meeting the same high quality refrigerant standards and specifications. They have been tested exhaustively by major manufacturers and are being used in their air conditioning and refrigeration equipment.

FAST FACTS ABOUT genetron® Super-Dry Refrigerants

- Guaranteed: Exceptionally low moisture content
- Non-corrosive to standard equipment materials
- Non-toxic, non-flammable, stable, safe
- Critical and freezing points well outside range of operating uses
- Solvent action on oil helps prevent solidification or congealing of lubricant
- Miscible with oil; aid in lubrication of equipment

genetron 11 ORANGE LABEL

Trichloromonofluoromethane

genetron 12 WHITE LABEL

Dichlorodifluoromethane

genetron 141 GREEN LABEL

Monochlorodifluoromethane

Selected Physical Data

	CCl ₃ F	CCl ₂ F ₂	CHClF ₂
Molecular Weight	137.4	120.9	86.5
Boiling Pt. (°F) at 1 Atmosphere Pressure	74.7	-21.6	-41.4
Evaporator Pressure at 5°F (p.s.i. absolute)	2.93	26.52	43.02
Condensing Pressure at 86°F (p.s.i. absolute)	18.3	108.0	174.5
Freezing Point (°F) at 1 Atmosphere Pressure	-168.0	-247.0	-256.0
Critical Temperature (°F)	388.4	232.7	204.8
Critical Pressure (p.s.i. absolute)	635	582	716
Compressor Discharge Temperature (°F)	113	102	131
Compression Ratio (86°F/5°F)	6.24	4.08	4.06
Liquid Viscosity at 5°F (centipoises)	0.650	0.328	0.286
Liquid Viscosity at 86°F (centipoises)	0.405	0.251	0.229
Vapor Viscosity at 1 atm. and 5°F (centipoises)	0.0096	0.0114	0.0114
Vapor Viscosity at 1 atm. and 86°F (centipoises)	0.0111	0.0127	0.0131
Saturated Liquid Density at 5°F (lbs./cu. ft.)	97.88	90.00	83.34
Saturated Liquid Density at 86°F (lbs./cu. ft.)	91.38	80.63	73.36
Saturated Vapor Density at 5°F (lbs./cu. ft.)	0.0815	0.6735	0.8034
Saturated Vapor Density at 86°F (lbs./cu. ft.)	0.4461	2.569	3.213
Specific Volume of Vapor at 5°F (cu. ft./lb.)	12.27	1.485	1.246
Latent Heat of Vaporization at 5°F (B.t.u./lb.)	84.0	69.5	93.5
Net Refrigeration Effect of Liquid 86°F/5°F (B.t.u./lb.)	67.5	51.1	69.3
Specific Heat of Liquid at 86°F (B.t.u./lb., °F)	0.209	0.243	0.335
Specific Heat of Vapor at Constant Pressure of 1 atm. and 86°F (B.t.u./lb., °F)	0.13	0.14	0.15
Specific Heat Ratio at 86°F at 1 atm. (k = Cp/Cv)	1.14	1.14	1.18
Coefficient of Performance	5.00	4.69	4.65
Horsepower/Ton Refrigeration	0.943	1.005	1.016
Refrigerant Circulated/Ton Refrig. (lbs./min.)	2.96	3.91	2.89
Liquid Circulated/Ton Refrig. (cu.in./min.)	56.0	83.8	68.1
Compressor Displacement/Ton Refrig. (c.f.m.)	36.3	5.81	3.60
Thermal Conductivity of Liquid at 86°F (B.t.u./hr./sq.ft./°F/ft.)	0.0609	0.0492	0.0595
Thermal Conductivity of Liquid at 32°F (B.t.u./hr./sq.ft./°F/ft.)	0.0680	0.0559	0.0704
Thermal Conductivity of Vapor at 86°F (B.t.u./hr./sq.ft./°F/ft.)	0.0048	0.0056	0.0068
Thermal Conductivity of Vapor at 32°F (B.t.u./hr./sq.ft./°F/ft.)	0.0045	0.0048	0.0060
Toxicity (Underwriters' Laboratories Group No.)	5	6	5A
Flammability & Explosivity	none	none	none
Relative Dielectric Strength of Vapor (compared with Ethyl Chloride as Unity)	3.00	2.40	1.31
Odor	Ethereal	Ethereal	Ethereal
Type of Compressor in Which Usually Used	Centrifugal & Rotory	Reciprocating	Reciprocating
Evaporator Temperature Range	30 to 50°F	0 to 50°F	-130°F to 0°F
Solubility of Water in Liquid Refrigerant at 32°F (gm./100 gm. Refrigerant)	0.0036	0.0026	0.060
Solubility of Water in Liquid Refrigerant at 86°F (gm./100 gm. Refrigerant)	0.013	0.012	0.15
Oil Solubility (Miscibility with Lubricating Oils)	yes	yes	yes**

*Based on 5°F Evaporator Temperature and 86°F Condenser Temperature.

**Separates into two phases at lower temperatures.

FREE! VALUABLE NEW FOLDERS! Write today for important new informative folders, "Genetron" Super-Dry Refrigerants for Air Conditioning and "Genetron" Super-Dry Refrigerants for Refrigeration.

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ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.



Basic Chemicals for American Industry

cal in operation. Eliminate many maintenance difficulties characteristic of wet systems and avoid problems of water shortage.

Circle No. 133 on Reader Service Card

Tube Cleaner

Product: "AB" tube cleaner for removing algae, slime, and mud from condensers.

Manufacturer: Thomas C. Wilson, Inc., Long Island City, N. Y.

Features: Outfit has carrying handle and built-in base, is lightweight and portable. It is powered by $\frac{1}{4}$ -hp motor. Several types of

flexible shafts and metallic casings are available to fit various tube sizes from $\frac{5}{8}$ to $\frac{7}{8}$ " o.d. Assembly is readily attached to the motor by means of a grooved spline connection.

Circle No. 134 on Reader Service Card

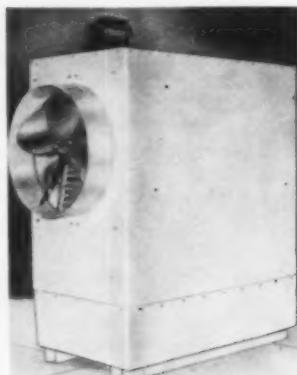
Fiber Glass Tower

Product: "Duro-Lite" cooling tower with fiber glass housing.

Manufacturer: Baldwin-Ward Mfg. Co., Ottawa, Kans.

Features: Towers are rust proof and fire and acid resistant; need never be painted. Fillings are of

California redwood. Fans are deep-pitched for maximum draft at low speed. Units are shipped assembled



except for mounting the motor. Sizes range from 3 to 10 tons, and larger sizes are planned. Towers are guaranteed for 20 years. Light weight, in comparison with steel towers of same size, eliminates the necessity of heavy hoisting equipment, as two men can easily handle towers up to 10-ton size.

Circle No. 135 on Reader Service Card

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DUPONT

THE WORLD'S LEADING REFRIGERANT IN THE INDUSTRY'S BEST PACKAGE

You score two ways when you use duPont's "Freon" in Eston's convenient and economical CHARG-A-CANS. "Freon," the versatile and low cost refrigerant, was originally developed by duPont more than 24 years ago. Since that time duPont's continued research has developed "Freon" into the safe and efficient refrigerant chemical it is today.

Packaged and distributed by Eston, "Freon" refrigerants in CHARG-A-CANS are setting the pace for the entire industry with controlled purity, accurate charging, and time-saving disposable containers. A strong, dependable source of supply for the world's finest refrigerants — in the industry's best package.



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"Freon" is a DuPont Trade Mark

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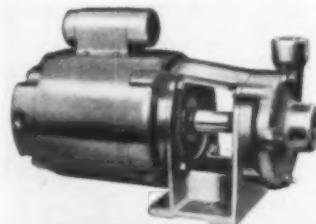
Circle No. 75 on Reader Service Card

Centrifugal Pumps

Product: New series of centrifugal pumps (Series 7720) in fractional horsepower sizes, especially adaptable for air conditioning and booster pump service.

Manufacturer: A. Y. McDonald Mfg. Co., Dubuque, Iowa.

Features: Capacities range as high as 70 gpm at heads to 85 feet. Pumps are single stage, single suc-



tion, enclosed impeller types, designed for horizontal, vertical, or angular mountings. Sizes are $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 hp.

Circle No. 136 on Reader Service Card

Counterflow Conditioner

Product: Model 118 (gas) and 218 (oil) furnace suitable for combination with cooling unit.

Manufacturer: Mueller Climatrol, Milwaukee, Wis.

Features: New models are additions to "Suburbanaire" line which includes highboys, lowboys, and horizontals. No. 118 and 218 are in

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Most Advanced Idea For Heating-Cooling Comfort



Pioneered by Penn Boiler, Air-rads offer completely new standards of efficiency and value in heating-cooling units. Zoned or individual room temperature control . . . fractional cooling . . . heating and cooling without piping changes . . . moderate installation and operation costs . . . these are only a few of Air-rad's many advantages.

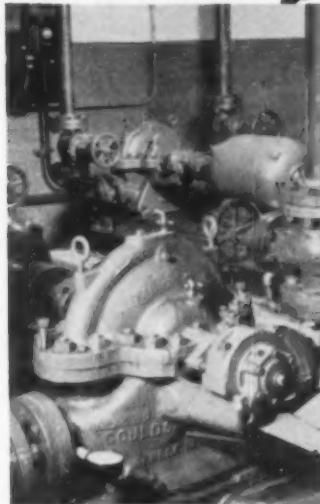
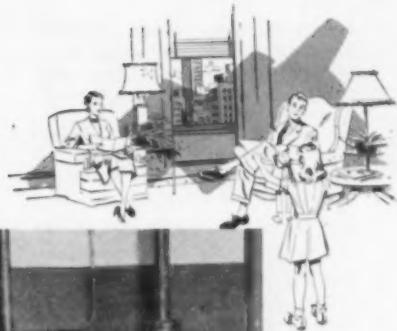
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PENN BOILER & BURNER
MFG. CORP.
LANCASTER, PENNA.

Circle No. 67 on Reader Service Card
& AIR CONDITIONING • JUNE, 1955



Two of four Goulds pumps serving air conditioning system in Hotel Governor Clinton, New York.

These pumps insure cool comfort for Governor Clinton's guests

With 1,200 rooms to air condition, New York's Hotel Governor Clinton needs pumps it can depend on.

That's why the hotel's management selected Goulds pumps for their new air conditioning system. They knew the Goulds reputation for efficient operation and long, trouble-free service.

Three 2½" Goulds Fig. 3480 pumps handle this day-and-night assignment. Each has a capacity of 300 GPM under a 90-ft. head, and circulates water to the 200-ton cooling tower on the 29th floor. A smaller Goulds Fig. 3460 pump with a 90 GPM capacity handles the pumping job during low-load periods.

You, too, can insure efficient operation, and years of uninterrupted service, by specifying Goulds pumps for your air conditioning installations. There are models and sizes for every requirement.

Your Goulds representative will welcome an opportunity to help you select the right pumps to suit your needs. Or write directly to our home office in Seneca Falls. Your inquiry will receive prompt attention.



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Circle No. 68 on Reader Service Card

100,000 Btu capacity only; are $6\frac{1}{2}$ " high, $2\frac{1}{2}$ " wide, and $26\frac{1}{4}$ " deep, plus burners. Units have large centrifugal blower with permanently lubricated sealed ball bearings, built-in filter rack, pre-wiring, and limit controls. They are especially suitable for combination with Type 905 counterflow cooling unit.

Circle No. 137 on Reader Service Card

Fractional Motor

Product: New "SP-25" fractional horsepower motor.

Manufacturer: Electric Motors & Specialties, Inc., Garrett, Ind.

Features: Exceptional coolness, quietness, and compactness are characteristics of this motor, rated at



1/60 to 1/30 hp with standard speeds of 900 to 1550 rpm. At reduced voltages, speeds as low as 400 rpm may be used. Motor may be operated in vertical or horizontal

position. Unusual construction integrates housing with a single bearing in one iron casting. Absence of metal-to-metal contact between shaft and bearing reduces frictional heat almost to zero. Unusual lubrication system provides isolated lubricant reservoir and pumps cool lubricant at 10 drops a minute through circulation system. Typical applications include all types of blowers, centrifugal pumps and self-cooled installations.

Circle No. 138 on Reader Service Card

Cooling Tower

Product: "Water-Master" cooling tower for small commercial and residential use.

Manufacturer: Lillie-Hoffman Cooling Towers, Inc., St. Louis, Mo.

Features: Units are made in 3, 5, 8, and 10-sizes. Internal steel parts are mastic coated for sound deadening and rust proofing qualities. Exteriors are prime coated with



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gauge ...

... for permanent
installation on
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- Wide Range of Sizes and Pressures
- Dial sizes: $2\frac{1}{2}$ ", $3\frac{1}{2}$ " and $4\frac{1}{2}$ " for Freon-12 or Freon-22.
- Dial size, $2\frac{1}{2}$ " only for gauges with both Freon-12 and Freon-22 scales.
- Dial range for pressure gauges: 0-300 lbs. and 0-400 lbs. For compound gauges, $30^{\circ} \times 150$ lbs., $30^{\circ} \times 300$ lbs., $30^{\circ} \times 400$ lbs.
- All gauges have "Recalibrator." All except $3\frac{1}{2}$ " and $4\frac{1}{2}$ " gauges standard with $\frac{1}{4}$ " male bottom connection and restriction screw in socket. $3\frac{1}{2}$ " and $4\frac{1}{2}$ " gauge have $\frac{1}{4}$ " N.P.T. connection.

Today's gauge for today's job on those Freon systems. Highly accurate and built down to the last detail to stay accurate.

The corresponding temperature scales are in color. Note the wide ranges of sizes and readings in F-12 and F-22 types.

Here is the gauge for permanent installation on refrigeration systems . . . with the Marsh "Recalibrator" to keep it permanently accurate. Write for facts or See Your Jobber

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GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

Circle No. 69 on Reader Service Card

rust-inhibiting paint, and are finished in enamel. Components are of redwood. All models are available with direct drive, vertical submersible pumps located in front end of basin. Pump with bronze impeller and shaft is submerged in water of basin without packing boxes or seals.

Circle No. 139 on Reader Service Card

PRODUCTION STARTED ON GAS-TYPE UNIT

Commercial production of a new-type natural gas powered air conditioner, named the "Cobaire," has already begun, and first models should be available in June, according to announcement by the manufacturer, Cobell Industries, Inc., Ft. Worth, Tex.

About 40 persons, representing major gas companies, witnessed the recent first official showing of a demonstration model. It was a three-ton unit, operated by a 3-hp engine fueled by natural gas.

SOLAR LOAD . . .

Continued from page 81

reach interior walls, rotation of the earth will have moved it to a shaded position and reverse conduction will carry heat back to the atmosphere.

The time when solar load reaches a peak should, if possible, be sometime other than when total load from all sources is greatest. This will make possible a lower total load at any one time. It is this load which determines minimum capacity. Installation of a carpet, planting of ivy or other protection from direct radiation,

"BIG TOP" GOES BIG TIME



CIRCUS THEME featuring "the best performers on earth" will be used this summer for sales promotion of products of Mueller Brass Co. Here discussing the program, under a colorful mobile which is part of the promotion, are (left to right) E. F. Hall, assistant manager of wholesale distribution division; O. R. Payton, advertising manager; and C. R. Black, manager of wholesale distribution.

of walls with solar transmission coincident with peak load, will help accomplish this result.

The angle at which solar rays strike a surface has an important effect on heat transmission. The more nearly perpendicular, the more intense the radiation. Thus, a building at a 40-degree latitude will receive more radiation through the south wall and less through the roof than the same building at a 30-degree latitude. This is illustrated in Figure 3.

The south wall of a building located in Pittsburgh or Denver (40 degrees north latitude) will add solar load equivalent to an addi-

tional temperature difference of 3 to 20 degrees, depending upon the color. The south wall of the same building in Jacksonville or Houston (30 degrees north latitude) will add the equivalent of only zero to 5 degrees temperature rise, or an average of less than one-fourth that of the previous example. Roof transmission, however, will be somewhat greater at the lower latitudes.

These loads occur mainly between the hours of 11 a.m. and 4 p.m. for south walls, with a peak

at about 2 p.m. Roof loads begin at about 9 a.m., reach a peak at 4 or 5 p.m., and gradually return to zero at about 7 p.m.

The effects of latitude and directional positions of walls, windows, and similar surfaces deserve special consideration in the layout of a new building where air conditioning is to be installed. They should also be considered in planning solar treatment of buildings already constructed. Protection of southerly exposed walls will be more effective at higher

top notch refrigeration service men use DURO-CHROMETM MATCHED-SET TOOLS



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Ask your Duro Jobber for a free copy, or send coupon below to DURO, with 10¢ in coin to cover costs of postage and handling.

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NOW--Modine STAINLESS STEEL Gas-Fired Duct Furnaces

POSITIVE RUST PROTECTION — Here's a new lightweight gas-fired duct furnace with rust-and-corrosion-resistant stainless steel heat exchanger and burner. It's specially built for use with cooling coils or packaged air conditioners. Cool, moisture-laden air and condensation which rust ordinary steel tubes and cast iron burners are no hazards to stainless steel. This means greatly extended service life . . . lower maintenance costs . . . and wider application possibilities.



CONTROLS ALWAYS ACCESSIBLE

Entire control assembly is mounted on side of unit . . . always readily accessible, even when furnace is near floor or in close quarters where clearance is a problem.

DIRECT-FIRED HEAT EXCHANGER — Stainless steel tubes are seam-welded into a rigid, gas-tight heat exchanger. Each tube is individually-fired for most effective and uniform heat transfer.

For new Bulletin 855, contact the Modine representative listed in your classified phone book, or write to Modine Mfg. Co., 1584 DeKoven Ave., Racine, Wis.



Modine GAS-FIRED STAINLESS
STEEL DUCT FURNACES

D-1260

Circle No. 66 on Reader Service Card

96

latitudes than at lower. The reverse is true for roofs.

A method of absorbing solar rays which should always be considered is the use of a spray pond on a flat roof. This can serve as a cooling tower and solar heat interceptor at the same time. Spraying of condenser discharge water on pitched roofs, or in the air adjacent to exposed walls, will also be very effective.

Shading Can Help

Solar load is usually estimated as the amount of heat transferred to a room by rise in temperature of external surfaces receiving radiant energy, and internal surfaces receiving such radiation through glass. There is an additional sensation of heat received by people exposed to direct rays through windows or skylights. This can be completely eliminated by shading.

Shading also may be important in reducing loads at hours other than those usually considered in estimating. Night tests have been made which indicate that the overall coefficient of transmission may be reduced as much as 15% by installation of white venetian shades.

Load Calculation Next

Windows in walls facing north, and others not receiving direct radiation at the time of peak total load, also should be considered for shading. Secondary radiation may account for a considerable portion of the load, particularly when there are a number of large windows.

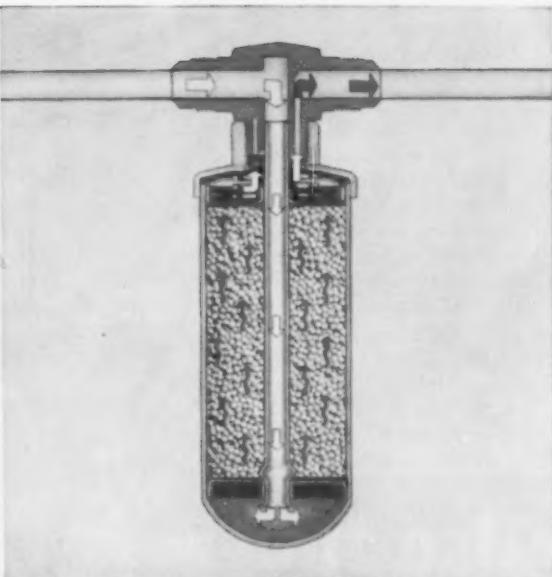
No effort is being made in this study to provide a formula for estimating the solar load for a particular installation. Such a formula would be too involved for practical use. There are a number of charts in the Guidebook of The American Society of Heating and Air Conditioning Engineers and in other standard texts and manufacturers' literature and estimate sheets which are satisfactory for this purpose. We merely have attempted to show ways by which this important load can be kept at a minimum.

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REFRIGERATION WHOLESALER

JUNE, 1955 • COMMERCIAL REFRIGERATION



The pink color in the Dry-Eye Connector window changes to blue when T-Flo Cartridge removes excessive moisture.



Note path of refrigerant through uniformly round pellets of Andrite in the T-Flo Dry-Eye Cartridge.

Dry-Eye System tells at a glance if refrigerant is wet or dry



Once the Ansul Dry-Eye System is installed you can replace the T-Flo Cartridge without breaking the line.

Takes the guesswork out of refrigerant servicing . . . controls moisture, removes acid

No more guessing—now you can tell scientifically if the refrigerant is *wet* or *dry*. If the Dry-Eye Connector window shows *blue*, the equipment is in a safe operating condition. If the window shows *pink*, excessive moisture is present. To remove the moisture, simply change the T-Flo Dry-Eye Cartridge. That's all there is to it.

Andrite, the drying agent used in the T-Flo Dry-Eye Cartridge, is superior to all other popular desiccants in the deep drying range. This is the range which determines the quantity of desiccant to be

used. As for acid removal, Andrite will pick up 4.5% of its weight in acid when completely saturated with water. The extraordinary drying capacity of the T-Flo Dry-Eye Cartridge allows you, in many cases, to install smaller driers than the ones you are now using.

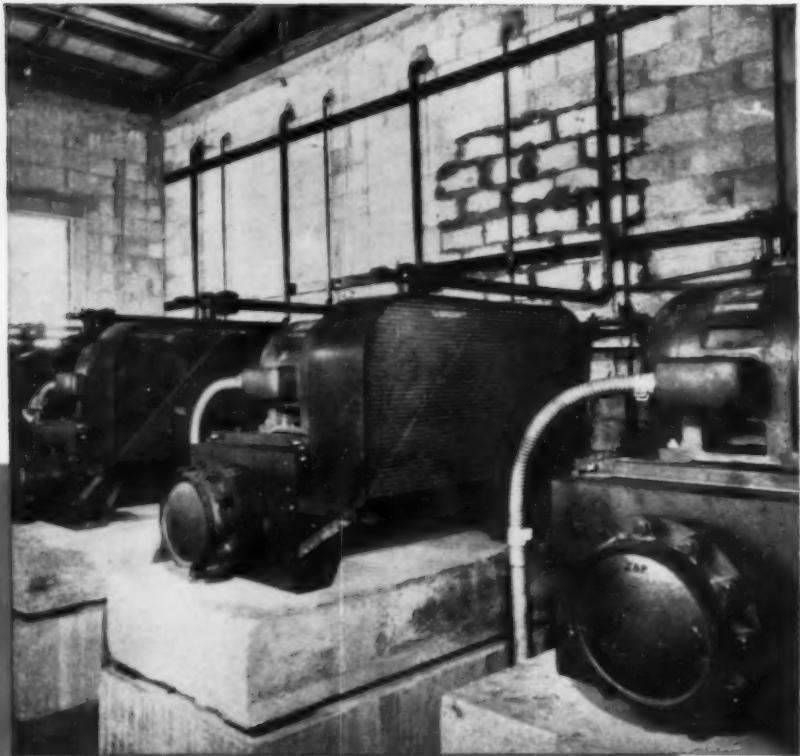
Test-try the Ansul Dry-Eye System on one of your "problem" units. See if it doesn't make servicing easier, more profitable. Contact your local Ansul wholesaler for a supply of Dry-Eye Systems. **ANSUL CHEMICAL COMPANY, Dept. D-22, Refrigeration Div., Marinette, Wisc.**



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**Use the
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assures**

HIGH EFFICIENCY AT LOW TEMPERATURES



WHETHER you're cooling for air conditioning, or refrigerating down to minus 100° F., *Texaco Capella Oil (Waxfree)* is the oil to use. *It won't wax out* in the system. You can count on clean, trouble-free, top-efficiency performance.

Texaco Capella Oil (Waxfree) is outstanding for 1) low haze and floc temperatures, 2) stability, and 3) oxidation resistance. In addition, it is non-foaming, moisture-free and compatible with all refrigerants.

There is a complete line of *Texaco Capella Oils*

(*Waxfree*) meeting all compressor requirements. Available in refinery-sealed 55-gallon and 5-gallon drums, 1-gallon cans—and the more popular grades in 1-quart containers.

Let a Texaco Lubrication Engineer recommend the one best suited to assure fine performance from your compressors. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

TUNE IN . . . TEXACO STAR THEATER starring JIMMY DURANTE or DONALD O'CONNOR on television . . . Saturday nights, NBC.

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JUNE, 1955 • COMMERCIAL REFRIGERATION

CONTRACTORS

NEWS • ACTIVITIES • PLANS

Air Friction Heat Is New Target For Research By Plane Engineers

Since breaking the sound barrier in flight is a relatively common occurrence now, General Electric engineers are looking at the problem of hurdling the thermal barrier, man's next obstacle in the conquest of space.

Writing in the *General Electric Review*, J. S. Alford and E. L. Auyer explain how speeds of 1500 miles per hour and above create problems of extreme heat caused by the "friction" of planes hurtling through space.

Auyer, who is manager of preliminary thermodynamic design for the Aircraft Gas Turbine Development Department, and Alford who is a development and design engineer with 11 patents relating to aircraft jet engines, explains the thermal barrier this way:

As the plane rushes at supersonic speeds through the air, it in a sense "rubs" against it causing a form of friction which generates heat. The faster the plane travels through space the more heat it generates.

An example of how this increase in temperature at high speeds can become serious can best be seen by using the official world's speed record (approximately 750 miles per hour).

The temperature caused by the air ramming against the plane or engine at 750 miles per hour is approximately 100 F.

This is welcome heat for arctic flights or high-altitude operation where the air is cold and the temperature rise can contribute toward solving the cabin-heating problem. However, for summer and tropical flight, this temperature rise would prove too uncomfortable for the pilot and passen-

gers so some form of cabin and cockpit refrigeration is required.

This refrigeration can be accomplished for speeds in the 750 mile per hour range. However, the ram temperature goes up with the square of the flight speed.

For example, at double the present world's speed record of 750 miles per hour, the temperature rise would be 400 F., or hot enough to "cook" the pilot and soften parts of the aircraft.

The engineers point out that this is a critical problem in the build-

ing of jet engines. At three times the speed of sound (or Mach 3) the air ramming into the jet engine inlet might be about 650 F., or hot enough to melt lead. In addition, for efficient operation of the jet engine, this "cool" air would have to be heated in the combustion chambers of the jet to approximately 1600 F. and would exhaust through an afterburner at over 3500 F. (steel melts at 2600 F.)

Mechanical strength and physical properties of metals decrease substantially at higher temperatures, so new metals and cooling methods are under consideration for flights of 1500 mph and up.

2 NEW DISTRIBUTORS NAMED BY GIBSON

Gibson Refrigerator Co., has announced the appointment of two new distributors.

Cannon Distributing Co., Charleston, S.C., is the new Gibson distributor in North and South Carolina. Glenwood Range Co., Boston, Mass., will distribute Gibson products in the Boston area.

Contractor Firm Shows Steady Growth



PLEASED WITH PROSPECTS for 1955 air conditioning volume are these executives of Biscayne Air Conditioning Co., Miami. Standing, from left: Bill Patterson, Bob Noah, Vic Hoover; seated: Bill Partridge, Dan McKenzie, George DuBois, Dave Tuber.

* * *

When Dan McKenzie took off his lieutenant commander's uniform for good some years after World War II, he didn't don a business suit or fancy sport

clothes. He got into dungarees and along with six other young men invested his savings in a used truck, a good supply of tools and embarked on a career of special-

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WHEN YOU INSTALL**

AMERICAN VIBRATION ELIMINATORS



Installed clean, bright and dry. The tough, water tight, polyethylene envelope preserves the factory built-in quality. When you're ready to install, the envelope is easy to remove, the Vibration Eliminator comes out bright, clean, and dry. Simplified installation instructions in each box make your job easier.



Lasting, leakproof performance engineered and built-in at the factory. The core is seamless, corrugated tin-bronze tubing, quality controlled through every manufacturing stage. This copper-tin alloy is specially engineered to stand up under vibration while carrying gases and liquids under pressure. Because the core is *seamless*, there are no joints or laps where leaks can start.

For extra strength and durability, the core is covered with bronze wire braid securely brazed in place. Sizes through 2" have a single wire braid covering; larger sizes a double braid covering for added strength.

Before it's shipped, the final assembly is pressure tested, oven dried, and sealed in a plastic envelope to keep out dirt and moisture.

3 You know what you get when you insist on "American Vibration Eliminators" marked on the carton and "American" stamped on the ferrule of the assembly. To get quality—look for "American."

American Vibration Eliminators are sold by leading distributors everywhere. For descriptive folder of standard sizes with installation instructions, write to The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Company, Ltd.

55191



Circle No. 119 on Reader Service Card

ized service that has developed into one of the largest air conditioning service organizations in the country.

The company is Biscayne Air Conditioning Co., Miami, and the men who have been with McKenzie since its beginning are Bob Noah, Vic Hoover, Bill Partridge, Dave Taber, George DuBois and Bill Patterson.

Today the original seven-man team directs all operations out of Biscayne's new modern quarters at 600 N. E. 13th St., at the foot of MacArthur Causeway. From this central location some 60 vehicles are dispatched by radio to all parts of the Greater Miami area, answering hundreds of service calls on a 24-hour, day-and-night basis.

A staff of engineers is maintained to do the calculating and estimating work, and the company's own sheet metal shop turns out the ductwork and ventilating systems. The company is a Carrier contractor-dealer.

A sign across the face of the company's building reads "1/4 Million Miamians Cooled Daily by Biscayne." Johnny Gladstone, sales manager, hopes that "by the end of the year we'll be changing that sign to read '1/2 Million'."

JORDON ESTABLISHES BUILT-IN DIVISION

Jordon Refrigerator Co., manufacturers of upright home freezers, freezer-refrigerator combinations, and commercial refrigeration, has announced it will establish a separate division to design, produce and sell its built-in refrigerator-freezer models. It is planning refrigerator and freezer units which can be installed on top of each other, side-by-side, or separately.

DISTRIBUTOR CHOSEN

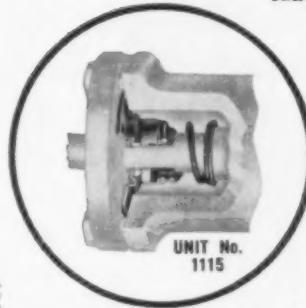
Heating & Cooling Products, Inc. has been named distributor for heating and air conditioning products of Union Asbestos & Rubber Co. in the Chicago area. Norman Weinstein, president of the distribution agency, plans to maintain a complete stock of "Unarco" items for immediate deliveries.

ROTARY SEAL

Replacement Units

EASY TO
INSTALL
ECONOMICAL
EFFICIENT IN
OPERATION

The original replacement units—
performance-proved in many thou-
sands of installations
during almost a
quarter century.



AT ALL
LEADING
JOBBERS



Available in a wide range of sizes for Commercial, Semi-Commercial, Air Conditioning and Household Refrigerator Compressors.

"Seal with Certainty!"

2020 NORTH LARRABEE ST.
CHICAGO 14, ILLINOIS, U.S.A.

CANADIAN AGENT: 2025 ADDINGTON AVE., MONTREAL 28, QUEBEC

REMOTE BULB, ADJUSTABLE DIFFERENTIAL

Two-stage Thermostat



. . . For air or chilled water

- Provides low-cost, two-stage (on-off) control of two compressors, a compressor and unloading device, or two solenoid valves in sequence
- Differential of each stage . . . and between stages . . . is adjustable
- Two single-pole, double-throw, snap-acting switches operate in sequence
- Graduated external adjusting knob
- Lock setting at any temperature with external recessed locking screw
- May be mounted in any position —simple to install, easy to wire



Consult nearest Field Office or write . . .

ASK FOR
BULLETINS
F-3594-3
F-6583

Barber-Colman Company

Dept. R, 1338 Rock Street • Rockford, Illinois, U. S. A.

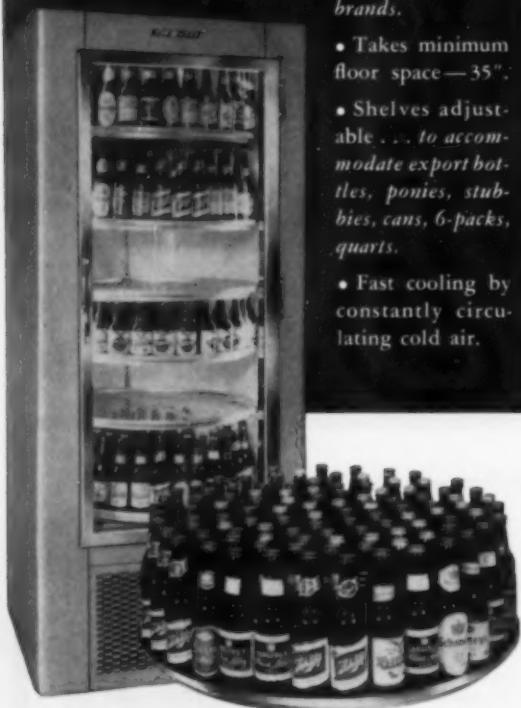
Circle No. 74 on Reader Service Card

KOLD-VUE...

A NEW BEVERAGE
MERCHANTISER by **KOLD-DRAFT**
OPENS UP A NEW MARKET
FOR YOU . . . TAVERNS . . . SUPER-
MARKETS . . . "TAKE OUT" STORES

FEATURING: • Lighted interior and full vision multi-pane hermetically sealed glass door—*Beverages sell themselves.*

- Completely revolving shelves—*Easy access to all beverages on each shelf—stock more brands.*
- Takes minimum floor space—35".
- Shelves adjustable . . . to accommodate export bottles, pony's, stubbies, cans, 6-packs, quarts.
- Fast cooling by constantly circulating cold air.



FREE BULLETIN AVAILABLE

Write for Literature and Prices to
THOMAS A. MARTIN, Sales Mgr.



KOLD-VUE . . . IS A PRODUCT
OF THE KOLD-DRAFT DIVISION
UNIFLOW MANUFACTURING CO.
EAST LAKE ROAD, ERIE, PENNSYLVANIA

Circle No. 76 on Reader Service Card

102

USEFUL

BULLETINS • BOOKLETS • CATALOGS

APPLICATION IDEAS and complete performance specifications for a new remote-bulb adjustable temperature controller are described in an illustrated catalog sheet (MC-121) of Fenwal, Inc. The controller, available in two temperature ranges, 60 to 250 F, and 200 to 550 F, is particularly suited to handling large electrical loads up to 35 amperes at 120 volts. Available bulb sizes, capillary lengths, and various modifications are described.

Circle No. 153 on Reader Service Card

ENGINEERING DATA for "Ficold" unit coolers is provided in a catalog sheet of Drayer-Hanson, Inc. These coolers, available in capacities up to three tons, were designed especially for industries where range of temperatures over 34 F must be maintained. Data sheet (Bulletin C-5.41) provides photographs of basic unit, dimensional drawings, construction-performance figures, table of dimensions, and specifications.

Circle No. 154 on Reader Service Card

DEFROSTING UNIT COOLERS with inner-fin evaporator tubing are described in a 16-page catalog of Bush Mfg. Co. Included are illustrations, system diagrams and complete specifications on the new inner-fin "HG" hot gas defrost systems, "ED" electric defrost systems, "GD" glycol defrost product coolers, Therm-O-Cycle systems, and water defrost unit coolers.

Circle No. 155 on Reader Service Card

SIZES AND SPECIFICATIONS of "Shurclose" rubber and plastic caps and plugs are among the contents of a four-page catalog (No. 55-1) issued by Ray A. Scherer and Co. Dimensional information covers seven types. Uses are described for protecting, sealing, and masking or tubing, fittings, valves, hydraulic components, and machined parts.

Circle No. 156 on Reader Service Card

COMPLETE LINE of its 1955 products is pictured and described in a new catalog (No. 18) of La Crosse Cooler Co. Among new items are the "Kool Closet" combination walk-in, reach-in refrigerator; back bar pre-coolers, and the "Thrif'aire" series of dry beverage coolers. A large number of parts and accessories are also described.

Circle No. 157 on Reader Service Card

THERMOSTATIC CONTROL VALVES are the subject of an eight-page catalog (C-6) of Lawler Automatic Controls, Inc. The publication includes sections on temperature regulators, tempering valves, shower valves, water controllers, water pressure equalizers, photographic control assemblies, and hospital equipment.

Circle No. 158 on Reader Service Card

BRONZE VALVES in 55 types and a wide variety of sizes are described in a condensed catalog (B255) of Milwaukee Valve Co. Included is a design to indicate the right type valve for any installation.

Circle No. 159 on Reader Service Card

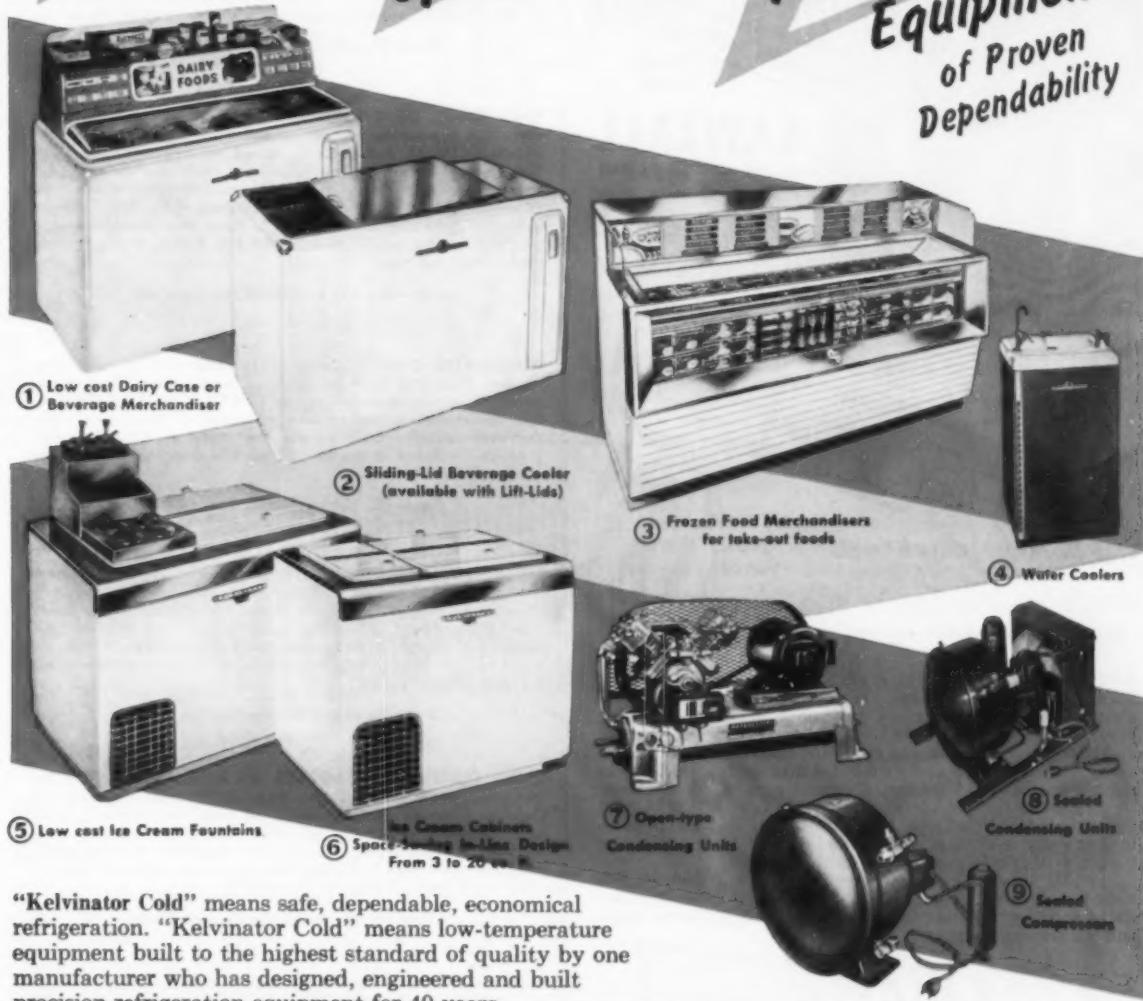
(Turn to page 104 for more Useful Literature)

Only "Kelvinator Cold" gives you ALL 3

Low
Original Cost!

Low
Operating Cost!

Low
Temperature
Equipment
of Proven
Dependability



"Kelvinator Cold" means safe, dependable, economical refrigeration. "Kelvinator Cold" means low-temperature equipment built to the highest standard of quality by one manufacturer who has designed, engineered and built precision refrigeration equipment for 40 years.

It means that you get more for your money, low-operating cost, low original cost and long, trouble-free service when you standardize on Kelvinator.

When your business depends on cold you can depend on

Kelvinator

Specialists in Refrigeration Since 1914

Write Kelvinator For Further Information

Commercial Dept., Kelvinator Div., Dept. CR-6 American Motors Corp.,
14250 Plymouth Road, Detroit 32, Mich.

Gentlemen:

Send complete product, pricing and financing data
 Have your representative call.

1. 2. 3.

4. 5. 6.

7. 8. 9.

Name Title

Company Name

Street Address

City Zone City

Saw DUCT OPENINGS

Fast and Easy

with

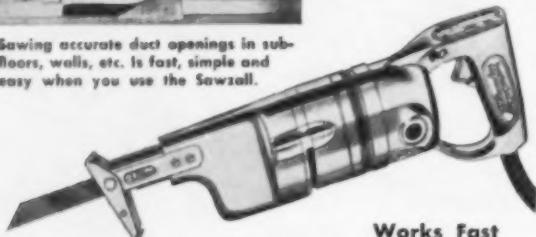


Model
414



SAWZALL A Complete Single Unit ELECTRIC HACKSAW

Sawing accurate duct openings in sub-floors, walls, etc. is fast, simple and easy when you use the Sawzall.



Lightweight... Only 6 3/4 lbs.

Needs No Starting Hole

IN WOOD OR COMPARABLE SUBSTANCE

SAWZALL puts an end to sawing fatigue. Does those extra hard, tedious, time-consuming sawing jobs... **fast and easy**. Cuts ferrous and non-ferrous metals, including sheet, angles, pipe and tubing. Zips quickly, too, through wood, plaster, embedded nails, composition materials, asphalt tile, etc. Guides easily with one hand and perfect for making intricate cuts in sheet metal or wood for fitting around pipe, ducts or beams.

Super-Powered by full $\frac{1}{8}$ hp 115 volt MILWAUKEE heavy-duty Universal type motor with ball and roller bearings at every vital point. Wide assortment of 27 different type blades available to meet every sawing need.

If you are still using old hand hacksawing methods, it's time you tried the Sawzall. You'll be amazed at what it can do in speeding up your jobs. . . . Helps you do better work and makes more money for you.

Sell Only \$84.50

Complete with handy steel carrying case and assort-
ed set of Sawzall blades.

See It Demonstrated Today!

... or write for Bulletin SW-6



MILWAUKEE ELECTRIC TOOL CORP.

5310 W. State St., Milwaukee 8, Wis.

Canadian Distributor MATTHEW MCGRATH & SONS, Montreal

Circle No. 78 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 102

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Circle No. 165 on Reader Service Card

PRODUCT MARKERS of the self-adhesive and wire-attached types are described in two catalogs of North Shore Nameplate, Inc. Both are heat resistant up to 400 F. They are made to standard codes or to specification.

Circle No. 166 on Reader Service Card

(See page 82 for Air Conditioning Literature)

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your request will be forwarded directly to the companies concerned.

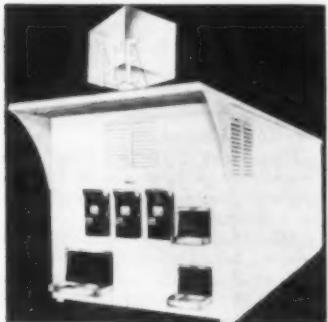
(For Air Conditioning Products turn to page 86)

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Product: "Polar" ice vending machine, coin operated.

Manufacturer: Refrigeration Engineering Co., Montgomery, Minn.

Features: Cabinet, suitable either for indoor or outdoor use, houses heavy duty refrigeration equipment with 2-hp compressor and automatic defrost system. Vending



belt store 54 bags of 10 lbs., 55 bags of 25 lbs., and either 54 blocks of 25 lbs. or 36 blocks of 50 lbs. Coin mechanism takes customer's change in nickels, dimes or quarters; rejects slugs and foreign coins. Exterior is embossed aluminum painted white; hardware is bright chrome. Electric display sign is included. Cabinet dimensions: 8' x 20' x 8' high.

Circle No. 168 on Reader Service Card

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tight conduit box can be rotated to any position. Hardware is treated with protective asphaltum, and stainless steel components can be supplied if required.

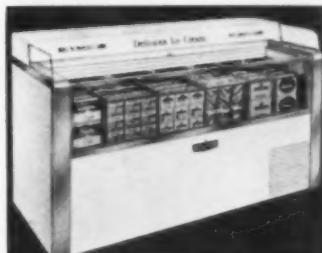
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Product: Three new glass-front open-top ice cream merchandise cabinets.

Manufacturer: Schaefer, Inc., Minneapolis, Minn.

Features: Model GF-111 holds 476 pint-size ice cream packages; is 49" x 30¹/₈" x 43⁹/₁₆" high. Model GF-154 (above) holds 664 pint packages with similar height and floor space of 76¹/₁₆" x 30¹/₈". Model GF-247 holds 1020 pint pack-



ages with similar height and floor space of 85¹/₈" x 30¹/₈". Each cabinet is equipped with fluorescent lighted superstructure, and may be either a low (one-shelf) or high (two-shelf) type.

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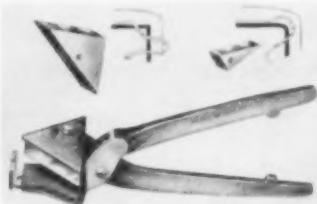
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Gasket Notcher

Product: Pliers with cutters for shaping gaskets to square or rounded corners on refrigerators.

Manufacturer: Wagner Tool & Supply Corp., Long Island City, N.Y.

Features: Pliers are equipped with interchangeable cutters for notching at 90 or 22¹/₂ degree angles. Center indicator permits cut to be positioned accurately. Adjustable



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Insulating Cement

Product: "Super Powerhouse" mineral wool cement for thermal insulation of pipes.

Manufacturer: Baldwin-Hill Co., Trenton, N.J.

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Saw DUCT OPENINGS

Fast and Easy

with

Model
414



SAWZALL A Complete Single Unit ELECTRIC HACKSAW

Sawing accurate duct openings in sub-floors, walls, etc. is fast, simple and easy when you use the Sawzall.



Lightweight... Only 6 1/8 lbs.

Needs No Starting Hole

IN WOOD OR COMPARABLE SUBSTANCE

Works Fast
Saves Money
Saves Temps

*2250 STROKES
PER MIN.

SAWZALL puts an end to sawing fatigue. Does those extra hard, tedious, time-consuming sawing jobs... *fast and easy*. Cuts ferrous and non-ferrous metals, including sheet, angles, pipe and tubing. Zips quickly, too, through wood, plaster, embedded nails, composition materials, asphalt tile, etc. Guides easily with one hand and perfect for making intricate cuts in sheet metal or wood for fitting around pipe, ducts or beams.

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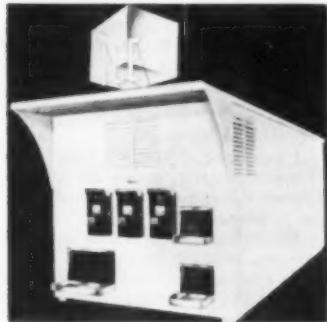
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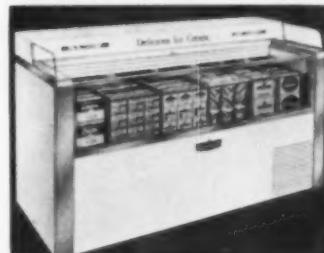
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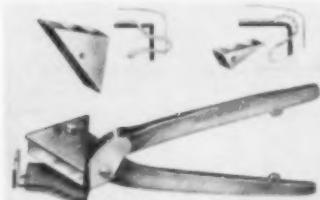
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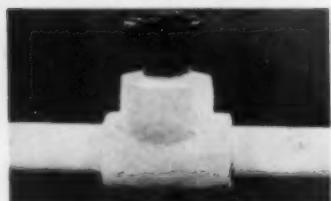
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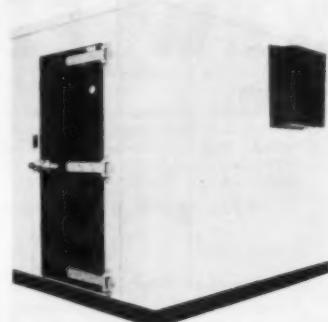


other irregular surfaces, or over regular insulating cement, blankets, or other forms of insulation. It is easy mixing and troweling, and can

be used to temperatures of 1700 F. It is workable for one hour, and sets to initial hardness in two to three hours.

Circle No. 173 on Reader Service Card

and widths of vertical side-wall sections. Widths of 24, 36, and 48" available. Double rubber gasket is used between sections. Framing is tongue

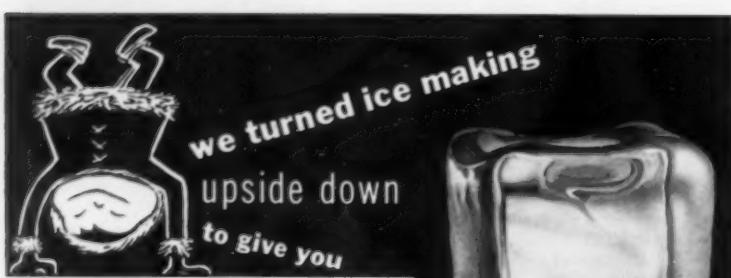


Pre-fab Walk-in

Product: "Chill-Air" walk-in cooler with vertical sections in three widths to permit size variations.

Manufacturer: Erickson Industries, Inc., Roberts, Wisc.

Features: Sizes ranging from 6' x 6' x 7'6" to 12' x 12' x 7'6" may be had by choosing different numbers



Kleer Kubes®

What's the biggest problem with ice machines? Most people say "maintenance!" That's why we developed "Inverted Rain," the ideal way to make ice cubes.

"Inverted Rain" forms and harvests KLEER KUBES without mechanical assistance or flotation processes. "Inverted Rain" aerates and filters the water a hundred times an hour—the KLEER KUBE Ice Maker operates efficiently even in the hardest water, with no danger of clogging or deterioration. And because KLEER KUBES move by gravity alone, there are no ice-handling parts to break down. The KLEER KUBE Ice Maker is so simple and service-free that it will last indefinitely!

"Inverted Rain" makes the kind of cubes your customers want—clear, solid, sparkling and really pure—KLEER KUBES!

8 years of research went into the design of the KLEER KUBE Ice Maker. Write today for a free booklet that tells the fascinating story of "Inverted Rain".

PROLESEL, INC.

4601 Highway 7, Minneapolis 16, Minnesota

Circle No. 80 on Reader Service Card

solid...longer lasting



pure, clear, sparkling



and groove. Doors may be hinged right or left. Construction is all metal on Douglas fir framing, with Fiberglas insulation compressed to 3½" thick. Exterior is white baked-on enamel, with cadmium or chrome plated hardware. Interior is galvanized. Units are available knock-down for easy assembly.

Circle No. 174 on Reader Service Card

Testing Chamber

Product: "Tenney-Mite" low temperature testing cabinet for laboratories, metal treating, and similar applications.

Manufacturer: Tenney Engineering, Inc., Union, N.J.

Features: Unit has five separate vertical and horizontal arrangements with top or front opening door. Swivel casters may be added. In-



terior capacity is 1½ cu. ft. Three low temperature ranges are available: -40, -100, and -120 F. Pull-down on basic -100 F model is approximately 60 minutes, using 110-volt current.

Circle No. 175 on Reader Service Card

Stairway "Walker"

Product: Magnesium hand-truck for moving air conditioners or refrigerators on stairways.

Manufacturer: L-S Heating & Engineering Co., Philadelphia, Pa.

Features: Unit, carrying up to 350 lbs., will "walk" up stairs when its handles are pumped. Makes practical one-man deliveries and in-



No fits over splits when you
FLARE *



You can flare DRYSEAL for compression fittings without the worry that it will split. The special temper and ductility of DRYSEAL see to that. Bending dead-soft

DRYSEAL is equally easy... do it by hand... no tools of any kind are needed.

And when you get your DRYSEAL take a gander at those double-crimped ends. This is the final step in manufacturing, immediately following a special cleaning and dehydrating operation, which keeps dirt and moisture from entering the tube.

The seal is made in such a way that it does not change the diameter of the tube so it can be passed through any opening large enough for the tube itself. Economical tube sizes range from $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D. The DRYSEAL carton, attractively designed for easy identification, contains one 50-foot coil... is easier to handle, light weight, economical and sturdy made to assure protection of the tube in stock and in transit.

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COPPER AND BRASS INCORPORATED

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Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N.Y.
Sales Offices in Principal Cities, Distributors Everywhere.

REVERE

DRYSEAL
COPPER
REFRIGERATION
TUBE

Circle No. 81 on Reader Service Card

stallations. Folding, rubber-covered legs do not depend on friction with steps and will operate when steps are wet, icy, or polished.

Circle No. 176 on Reader Service Card

High Vacuum Pump

Product: "Hyvac 7", vacuum pump with motor.

Manufacturer: Central Scientific Co., Chicago, Ill.

Features: Unit produces free air displacement of 70 liters per minute, and a guaranteed ultimate vacuum of 0.1 micron. It pumps from atmospheric to ultimate pressure in less

than five minutes. Floor space required is only $8\frac{1}{2} \times 17\frac{1}{2}$ " with overall height of 13"; net weight mounted is only 89 lbs. Unit in-

cludes intake O-ring connector coupling to save time in assembly or disassembly of vacuum system. Is available with $\frac{1}{3}$ hp motor.

Circle No. 177 on Reader Service Card

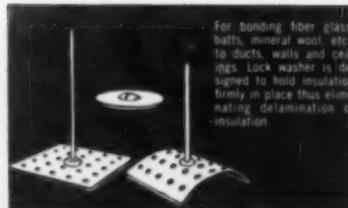


MIRACLE SURFACE ANCHORS

Speed Installation of Insulation

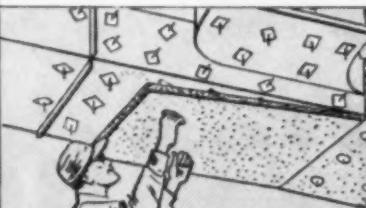
Eliminate drilling, welding, expansion bolts! Reduce time, construction, and installation costs!

No damage to surfaces in event of installation removal!

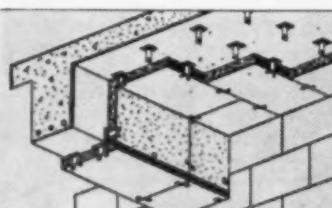


Use Miracle Surface Anchors to provide firm support for block, board or blanket types of insulation on clean rigid surfaces. Use for conduits, pipes, and fixtures, too. Also to provide anchorage in otherwise inaccessible locations.

Miracle Surface Anchors consist of perforated metal plates, $2'' \times 2''$ or $2\frac{1}{4}'' \times 2\frac{1}{4}''$ to the center of which is welded a spindle, prong, nail, bolt, or threaded stud, zinc plated, with dichromate finish after manufacture. Perforated base provides anchorage by bonding with Miracle Anchor Adhesive to masonry, metal, plaster, etc.



For bonding block insulation such as cork or Foamglas to ducts, walls and ceilings. Pronged Anchors are set between rows of block insulation and prongs bent in reverse direction over blocks.



FREE: Valuable, informative engineers and architects bulletins giving details and complete specification data. Yours on request.

MIRACLE SURFACE ANCHORS

are manufactured by
DEVICES, INC., a division of
MIRACLE ADHESIVES CORP.



MIRACLE ADHESIVES CORPORATION

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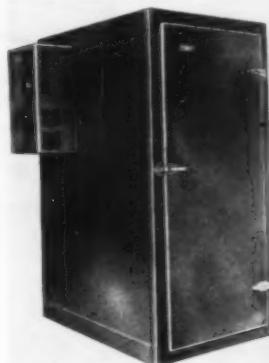
Circle No. 82 on Reader Service Card

Reach Or Walk-In

Product: "Kool Closet" combination reach-in or walk-in refrigerator, especially suited for auxiliary storage space.

Manufacturer: La Crosse Cooler Co., La Crosse, Wis.

Features: Two sizes are high enough to walk in but have pro-



visions for shelving for reach-in usage. Large size has $\frac{1}{3}$ -hp refrigeration unit and is $72''$ high $\times 62''$ wide $\times 48''$ deep. Other size has $\frac{1}{4}$ -hp unit and is $72''$ high $\times 34''$ wide $\times 48''$ deep. Exterior is grey baked enamel with cadmium plated hardware. Interior is zinc-grip metal. Insulation is 3" spun glass.

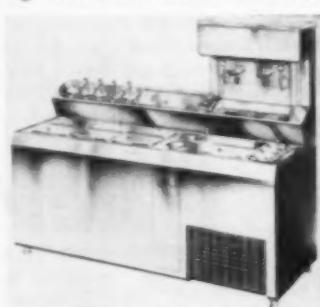
Circle No. 178 on Reader Service Card

Fountain Unit

Product: "Speed-Serv" dispensing head for installation on boottail fountains or creamer units.

Manufacturer: Everfrost Sales, Inc., Gardena, Calif.

Features: Units are available in a wide range of combinations of mixing faucets and draft arms. Fresh



syrup can be easily poured into three 2-gal. containers, and is mechanical-

READING "LEKTROSEAL" COPPER REFRIGERATION TUBE

**FIRST STEP in a
Quality Installation—**

Soft temper for easier forming . . . dehydrated — with crimped ends to seal out all moisture and dirt . . . and keep the inside surface absolutely clean. Comes in handy 50-foot coil packed in its own convenient protective carton, clearly labeled for easy identification. To be sure of the job — be sure to specify Reading.



READING TUBE CORPORATION

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- ATLANTA, GA., 690 Murphy Ave., S.W., Unit 5, Bldg. B
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4615 Euclid Ave.
- LOS ANGELES, CALIF.
320 Santa Fe Ave.

ly chilled by cold wall type refrigeration. Speed-Serv can be used on a fountain in conjunction with the regular draft arm station since a regular soda and plain water draft arm is available along with the mixing faucets.

Circle No. 179 on Reader Service Card

Hermetic Terminal

Product: Model 4780-25 modified hermetic terminal.

Manufacturer: Lunney Associates, Waltham, Mass.

Features: Device is adaptable for sealed units in air conditioning

and refrigeration equipment; has current capacity to 100 amperes and to 5000 volts. It is ceramic, compression-type, anchored gasket terminal with neoprene or silicone rubber as the sealing member. Overall length is 2½".

Circle No. 180 on Reader Service Card

Drink Dispensers

Product: Soft drink fountains with new carbonator.

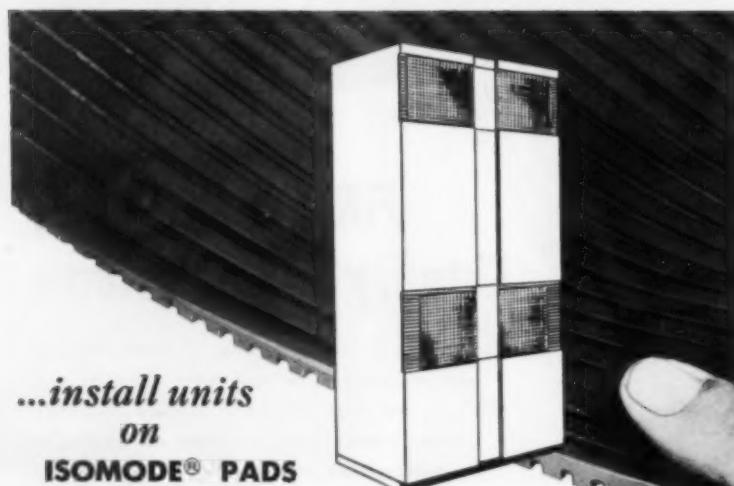
Manufacturer: Kold-Draft Div., Uniflow Mfg. Co., Erie, Pa.

Features: New line permits greater output during peak periods

due to ice bank and circulating ice water. As many as four flavors, jet stream and soft soda, and ice water



Easy way to control noise and vibration



*...install units
on
ISOMODE® PADS*

- It's easy to avoid complaints due to annoying vibration and noise. When installing air conditioning units, simply set them on ISOMODE PADS. Just cut what you need for the weight of the unit, place the Pads under each corner and that's it. ISOMODE PADS swallow up vibration, muffle noise on any type floor.

Made of Neoprene, these cross-ribbed, 5/16"-thick pads cut with ordinary shears, need no cementing, resist oils and water, last for years. One standard economy package of ten 18" x 18" ISOMODE PADS gives you enough for mounting 160,000 pounds of equipment. Write for prices and detailed Bulletin No. 415.

the MB manufacturing company, inc.
1060 State Street, New Haven, Conn.

HEADQUARTERS FOR PRODUCTS TO ISOLATE VIBRATION . . . TO EXCITE IT . . . TO MEASURE IT
Circle No. 84 on Reader Service Card

may be dispensed from single unit. Non-carbonated and pulpy drinks may be dispensed with special faucets. Units are self-contained but remote-type equipment is also available. Dimensions are 37½" wide, 20" deep, and 40" high. Exterior finish, water reservoir, syrup tanks, and chilling coils are stainless steel. Circle No. 181 on Reader Service Card

Polyphase Motors

Product: New line of general purpose ball bearing polyphase motors in rated NEMA frame sizes.

Manufacturer: Wagner Electric Corp., St. Louis, Mo.

Features: Type DP motors have corrosion-resistant cast iron frames and drip-proof construction. To pro-



tect them from moisture, ventilating air intakes are located at bottom of endplates, and outlets are positioned at base of frames on each side. Available in 1 to 30-hp ratings. Circle No. 182 on Reader Service Card

Solenoid Shut-Off

Product: Type 172 solenoid pilot control for positive shut-off of liquid lines.

Manufacturer: Sporlan Valve Co., St. Louis, Mo.

Features: Type 172 replaces 171 and includes all 1/4" SAE male flare connections. Unit is used in place of large capacity solenoid valves for

INSIDE STORY

on CHASE® Extra-Soft Copper Refrigeration Tube



See this double-crimp! There's one on both ends of every coil of superior Chase refrigeration tube. It completely seals off the inside from contamination. Keeps it super-clean and moisture-free—in perfect condition to make highly efficient installations. The double-crimp is same size as the tube. It can pass through any opening large enough for the tube. You can leave it on until final connections are made!

OUTSIDE STORY

on CHASE® Extra-Soft Copper Refrigeration Tube



These compact, easily-handled cartons serve a double purpose! First, they positively identify diameter of the 50 foot coils inside. Second, they protect the perfect, flat, double-layer coils until you need them. Coils themselves are as clean on the outside as they are on the inside! Smooth, flawless, precisely tempered to just the right degree of softness for easy hand bending. You can make every job a better job with Chase extra-soft copper refrigeration tube. Get prompt delivery from the Chase wholesaler near you!

Chase

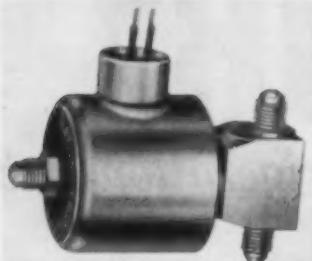
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Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte	Denver	Kansas City, Mo.	New Orleans	Rochester	(Sales office only)

shut-off and is available for Freon-12 and 22, Carrene-7, and Methyl



Chloride. Type 172 does not directly close liquid line but acts on thermo-

static expansion valve, causing the latter to close. Several thermostatic expansion valves, as large as those rated at 50 tons on F-12, may be connected to a single Type 172 control, thus simultaneously controlling the action of one valve or the entire plant.

Circle No. 183 on Reader Service Card

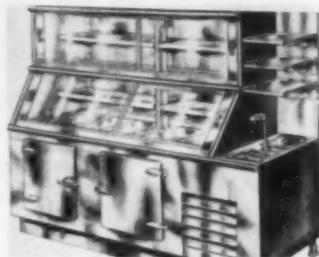
Back-Bar Equipment

Product: "Majestic" cold salad unit (MFW-622-S).

Manufacturer: Star Metal Mfg. Co., Philadelphia, Pa.

Features: Basic unit is available in over 175 variations, including re-

mote and self-contained. Model shown is self-contained, with two-



door refrigerated base, water station, and refrigeration to cool upper display sections as well. Cold air is blown through stainless steel duct for upper level cooling to 45 or 50 F under normal operating temperatures. No defrosting is necessary. Water cooling and storage tank are rated at 20 gph. Condensing unit is hermetically sealed.

Circle No. 184 on Reader Service Card

When the
condenser tubes
are loaded with scale
and the head pressure
is way up there—
the smart service man
prescribes a dose of

ANCO Condenser Cleaner



This exclusive dry formula dissolved in the sump removes scale and rust and restores normal operating efficiency in a few hours without harm to any metal surfaces.



Keep Cooling Towers Clean with
ANCO ALGAECIDE



Keep Scale from Forming with
ANCO WATER TREATMENT

See Your Wholesaler or Write Direct



Anderson Chemical Company
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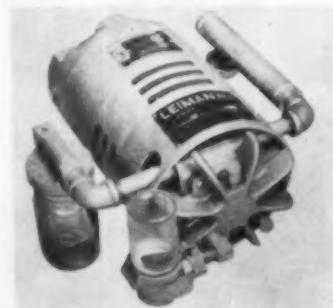
Circle No. 86 on Reader Service Card

Air Pump Unit

Product: Models K and K-3 integral air pump and motor units.

Manufacturer: Leiman Bros. Inc., Newark, N.J.

Features: K3 provides 28" Hg. continuous vacuum, 20 lbs. pressure, and has 7.2 cfm displacement. It is



18½" long, 15" wide, and 7" high. Unit is fan-cooled and is mounted on rubber silencers. Model K has same construction features with 3.6 cfm displacement and dimensions of 13½" x 12" x 7". Both models equipped with inlet filter and outlet separator to provide oil-free air. Circle No. 185 on Reader Service Card

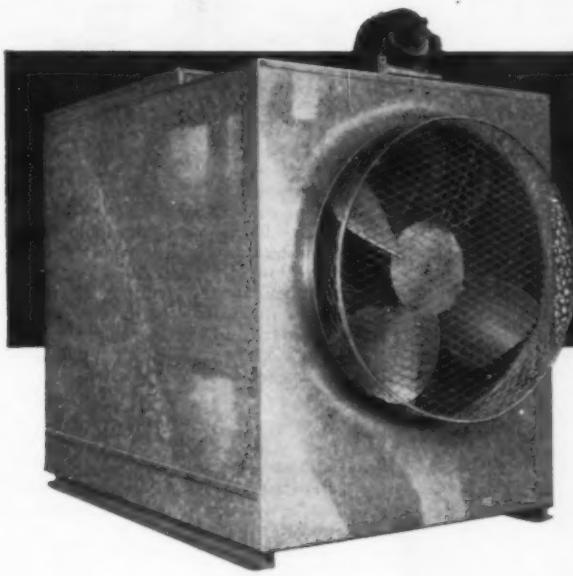
Stainless Reach-Ins

Product: New lines of reach-ins, a freezer, a combination refrigerator-freezer, and two beverage coolers.

Manufacturer: Jordon Refrigerator Co., Philadelphia, Pa.

Features: "Style-Line" series of reach-ins have leather-grained aluminum interiors, welded heavy-gauge

Dover Stops Rust Cold!



THE COOLING TOWER THAT'S
HOT-DIP GALVANIZED
AFTER FABRICATION

You put an end to troublesome, costly rust problems when you specify Dover packaged steel cooling towers. Dover, and only Dover, offers you at no extra cost a complete packaged cooling tower that is hot-dip galvanized *after* fabrication. And, another extra: the fan and fan shaft are non-corrosive to prevent rusting and unsightly corrosion ordinarily present after several months of service. These features are standard on all Dover Series "CF" towers.

On Your Next Job, Choose Dover Cooling Towers and Get ALL these Bonus Features

LOWER OPERATING AND MAINTENANCE COSTS . . . with a Dover Tower you get low-cost water cooling for any application requiring from 2 to 100 tons capacity. And the neat, modern design is an integral part of the rugged construction, promising good appearance with low maintenance costs.

NO NOISE PROBLEM . . . there's no noise problem with Dover propeller-type towers. Propeller fans are properly arranged and designed to eliminate noise and to allow for reasonable duct loss for inside installations.

GUARANTEED CAPACITY . . . in a modern fully equipped testing lab at the Dover plant, all tower models have been pre-tested under actual operating conditions. These actual tests make it possible for Dover to guarantee delivery of rated thermal capacity.

A stock of Dover packaged steel cooling towers is maintained in four parts of the country, providing fast delivery to all locations. There is a Dover representative near you . . . contact him today or simply fill out the coupon below.

DOVER

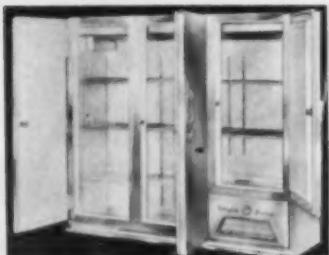
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<input type="checkbox"/> Please send me full information about Dover steel cooling towers.	
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steel construction, Fiberglas insulation, and stainless steel exteriors.



White enamel is optional in some models. Seven sizes available. Par-

allel line includes five models of reach-ins for use with remote compressors, an upright food freezer, and two beverage coolers with flat tops. Combination refrigerator-freezer is upright model with high-styled cabinet.

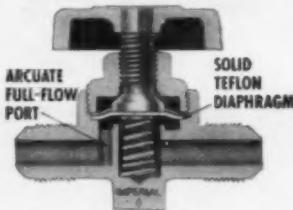
Circle No. 186 on Reader Service Card

Refrigerant Line Valves

Product: "Imperial Diamond" valves with diaphragm impervious to all refrigerants and unaffected by extreme operating temperatures.

Manufacturer: Imperial Brass Mfg. Co., Chicago, Ill.

Features: Exceptionally compact size and inexpensiveness may encourage use of these hand valves for many applications where valves are



presently omitted. Size is about one-third of conventional valves without reducing flow. Models available for either flare or solder connections, from $\frac{1}{4}$ to $\frac{3}{8}$ " o.d. Solid "Teflon" diaphragm forms a soft seat with body of the valve, and is designed to withstand unlimited openings and closings. Body is forged brass and has integral mounting bracket.

Circle No. 187 on Reader Service Card



"Solvex Cleaner reduces head pressure to normal in a few minutes while the machine is working"

Few cooling towers, shell and tube condensers and "evaps" can operate indefinitely without being cleaned. Accumulation of scale, algae, grease, slime and dirt can cause real trouble such as poor heat transfer . . . high head pressures . . . and increased operating costs. The way to clean up such trouble is with SOLVEX CLEANER GRAINS AND TABLETS, which can be used while the machine is working. Head pressure usually returns to normal in 15 to 45 minutes.

SOLVEX CLEANER is SAFE—safe for the operator who uses it, safe for the equipment he uses it on. SOLVEX aids in preserving metals. It disintegrates the scale and algae to sludge that can be harmlessly drained from the sump. In cases where very bad conditions exist ULTRA-SOLVEX is recommended.

Much of the trouble encountered in the operation of water-cooling

equipment can be prevented. Cooling towers and evaporative condensers, newly installed or after being cleaned, should be given the SOLVEX MAINTENANCE treatment to stop corrosion and retard scale formation and the growth of slime and algae. The SOLVEX MAINTENANCE FORMULA is obtainable in tablet form or in granular bulk (grains).

You can find out about these fine-quality products at your wholesaler or by writing—



P.O. BOX 487 - BIRMINGHAM, ALA.

Circle No. 88 on Reader Service Card

114

Upright Freezer

Product: Model D30 deluxe upright freezer for limited commercial applications or for home use.

Manufacturer: Nor-Lake, Inc., Hudson, Wis.

Features: Inner doors seal eight compartments separately when main door is open. Solid bond of aluminum between evaporator tubes and



storage shelf gives efficient operation, and shelves have six coils. Interior liners are aluminum. Food capacity is 960 lbs. Exterior is baked-on enamel. Fiberglas insulation surrounds the aluminum liner and is used in main door. Dimensions are: 70 $\frac{3}{4}$ " high, 48 $\frac{1}{2}$ " wide, 28 $\frac{1}{2}$ " deep. Compressor is $\frac{1}{3}$ hp, and condensing unit carries five-year warranty.

Circle No. 188 on Reader Service Card

Adhesive Tapes

Product: Trio of new adhesive tapes.

Manufacturer: Mystic Adhesive Products, Chicago, Ill.

Features: Brand 7100 has Fiberglas backing and silicone adhesive

It bonds at temperatures from -100 F to 550 F. Dielectric strength is 4000 volts minimum. Dry tensile strength is 150 lbs. per inch. Brand 7001 has glass fabric backing and qualifies as Class H insulation. It has minimum dielectric strength of 1200 volts, and excellent stability in presence of lubricating oils, acids, ammonia, chlorine, bromine and iodine. Brand 7000-G combines high tensile and dielectric strength with excellent bonding ability at temperatures from -100 F to 550 F. It has a Fiberglas backing and a silicone adhesive, and qualifies as Class H insulation.

Circle No. 189 on Reader Service Card

Condenser Units

Product: New model "Imeco" evaporative condensers in 16 sizes from 5 to 100 tons.

Manufacturer: Industrial Mfg. & Engineering Co., Chicago, Ill.

Features: Units are designed for heavy duty, as for the meat packing industry. Pan, casing, coil, coil supports, fan wheels and housing, eliminators, and pump strainers are all



hot dip galvanized after fabrication. Door hinges are stainless steel. Fan wheels are mounted on large diameter shaft, eliminating inside bearings. Pump strainer is outside the casing for easy cleaning. Since these models are made in three sections and are of panel construction, a variety of air inlet and outlet locations, and of piping arrangements are possible.

Circle No. 190 on Reader Service Card

Line Tapper

Product: "Tapanline" device penetrates tubing and provides valve and take-off.

Manufacturer: Mechanical Refrigeration Enterprises, N. Hollywood, Calif.

Features: One unit fits $\frac{3}{4}$, 5/16, and $\frac{3}{8}$ " tubing sizes; makes cutting,

Easier to use...

EASIER TO SELL!



WITH *Temprite* IN '55

Temprite water coolers are redesigned for '55! New features include dual water flow controls for maximum ease of use and dual thermostats for positive temperature control. Equipped with a newly designed low-side, capacities on some models have been increased as much as 10%. Lustrous, extra deep stainless steel

15 models in capacities of 3 GPM to 27 GPM.

basins and bubblers are combined with smart functional styling to make Temprite coolers *easier* for you to sell!

This year your customers are looking for quality and performance... features that are built into every Temprite product. Assure your customers satisfaction... sell them Temprite water coolers.



TEMPIRE PRODUCTS CORPORATION
P.O. Box 72-B • E. Maple Rd. • Birmingham, Mich.

Please send me complete information on Temprite Drinking Water Coolers.

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Circle No. 89 on Reader Service Card

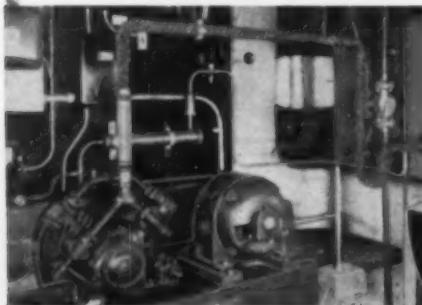
Put a PERMANENT STOP to Condensation Drip Rust and Corrosion

**WITH THIS PLIABLE,
CORK-FILLED,
MOISTURE-PROOF,
SELF-ADHERING
SEALER**



Cold water pipe or tubing condensation drip is messy, costly, often dangerous. Unheeded, the result is loss of valuable equipment, piping and connections rust and corrode, requiring frequent replacement, and hazardous conditions exist.

NoDrip Tape has been successfully used for years to *correct* and *control* this needless waste. Easily applied by winding spirally around pipes and tubing, NoDrip Tape becomes a *permanent* sealed jacket...without "extra" vapor-seal tapes or overwraps. Requires no bands, brads or fasteners because it's self-adhering. In addition, NoDrip Tape holds temperatures more steady, reduces icing and frosting of lines. Equally effective on any pipe or tubing, iron, brass, copper or other alloy.



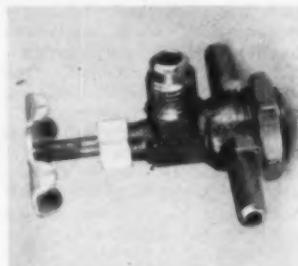
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list a roll Higher west
of Rockies and Canada.
(Subject to usual trade discounts)

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Circle No. 90 on Reader Service Card

flaring, or soldering unnecessary. Once used, it remains as permanent gauge port. Rigid-saddle construc-



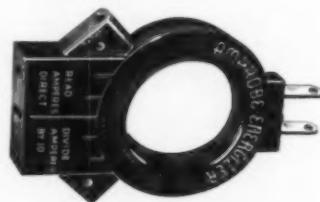
tion prevents slipping or turning on tubing. Aids in diagnosing refrigeration troubles quickly and easily without disturbing the system. Circle No. 191 on Reader Service Card

Electric Tester

Product: "Amprobe Energizer," Model A-40, measures volts and amperes at electrical outlets.

Manufacturer: Pyramid Instrument Corp., Lynbrook, N.Y.

Features: Improved version provides receptacles for measuring volt-



age under actual load conditions, and increases capacity of instrument to 25 amperes for direct current readings and to 10 amperes for 10X sensitivity readings. Circle No. 192 on Reader Service Card

Tiny Thermostat

Product: Disc-type, snap-acting sealed control, Series C-4344.

Manufacturer: Spencer Thermostat Div., Metals & Controls Corp., Attleboro, Mass.

Features: Exceptionally small size makes this series suitable for applications where space or weight are limited. Disc is located opposite terminal end of metal enclosure where temperature of air, liquids, or mounting surface can be followed clearly. Differentials between opening and closing temperature settings may be 15 degrees or more. Circle No. 193 on Reader Service Card



**BUY FROM YOUR
REFRIGERATION WHOLESALER**

Circle No. 91 on Reader Service Card

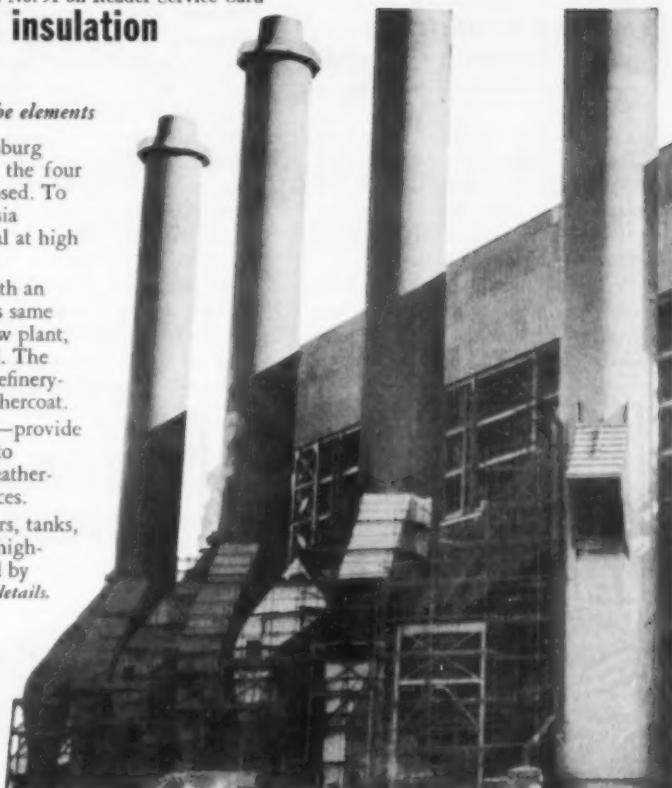
Laykold Weathercoat protects insulation on \$75,000,000 steam plant

Protects 4-inch magnesia block insulation from the elements

On the new Pacific Gas and Electric Company Pittsburg Steam Plant at Pittsburg, California, the rear of the four boilers, the breechings and the stack ducts are exposed. To accommodate the high temperatures, 4-inch magnesia block insulation was used. To maintain this material at high efficiency, it had to be protected from wet weather.

REPLACES CANVAS COVER—Initially, canvas applied with an adhesive was used for a cover. When failure of this same type of canvas cover was experienced at another new plant, P. G. and E. directed that another covering be used. The contractor drew on his previous experience in the refinery-construction field and recommended Laykold Weathercoat. Not only does Weathercoat—so-called "black coat"—provide a tough, resilient coating, but it also is economical to apply. When applied cold by spray equipment, Weathercoat sets to a regular texture, even on vertical surfaces.

WIDE ACCEPTANCE—On small jobs or large—for towers, tanks, or piping—Laykold Weathercoat offers a low-cost, high-performance combination that cannot be duplicated by any other type of insulation coating. Write for full details.



200 BUSH STREET • SAN FRANCISCO 4, CALIFORNIA

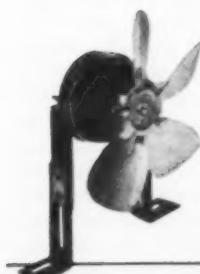
E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md.
Mobile, Ala. Cincinnati 38, Ohio Columbus 15, Ohio
Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La.
St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif.
Portland 7, Ore. Washington 5, D. C. San Juan 23, P. R.

"All in one" REPLACEMENT KIT

A Redmond low-cost general purpose package that has everything you need to replace worn-out motors, fans and brackets for refrigeration condensers, ventilators and humidifiers:

For Fans up to 10" at 1550 R.P.M.
adjusts vertically $2\frac{1}{2}$ "
adjusts horizontally $\frac{1}{2}$ "

Here's the best way to save time and money on your replacement jobs. Redmond units are quickly adjusted. Your nearest wholesaler will be glad to supply details; or write direct for additional information.



REDMOND DISTRIBUTORS, INC.

Owosso, Mich.

& AIR CONDITIONING • JUNE, 1955

Circle No. 92 on Reader Service Card

REDMOND DISTRIBUTORS, INC.
Dept. C, Owosso, Mich.

Send Replacement Kit details to:

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

MEETING COMPETITION . . .
Continued from page 58

to command attention from long distances away.

Under point number one, Meyer resolved to offer his bakery customers such outstanding economies in baked goods that the saving would outweigh the convenience of shopping in the suburban centers, particularly where a long drive out was concerned. Through

complete elimination of stakes, a reduction in advertising expense, reassignment of jobs to permit operation with one less employee, over a year's time, the desired results have been achieved. "We haven't cut prices but rather have been able to continue offering the same established rates on bread, cake, cookies, and specialties", Meyer said, "this means that while there has been a gradual price increase in most sections of the city, ours have remained the same".

Much of the "price appeal" has

hinged on the second step, which was the purchase of two huge all-aluminum low temperature reach-in refrigerators installed along the right wall of the bake shop, to supply two refrigerated display cases, one of them custom built for the purpose in the retail area. Meyers spent \$3000 for one large eight-door refrigerator and \$1000 for another retarder box, which provides both storage space for a complete inventory of baked goods and more efficient production. The \$3000 box in which Meyers sharp-freezes an advance stock of from two to four days' supply of every item except fruit pies, pumpkin pies, and similar items, operates at -10° F and has permanently insured against "run-outs". Installed

FLEXON VIBRA-SORBERS



NOW
U.L. LISTED

For high or
low side use
in sizes through 1½"

Flexon Vibra-Sorbers now come to you with full Underwriters' Laboratories' listing on their design and construction. Their use for either high or low side application allows you to use them without jeopardizing the U.L. listing status of the complete unit.

This added advantage further improves the standing of Flexon Vibra-Sorbers as the preferred method of isolating compressor noise and vibration in refrigerating and air conditioning systems. In addition, all metal construction has high resistance to corrosion and fatigue and retains its gas-tight characteristics even after being subjected to vibration for long periods.

U.L. listed Vibra-Sorbers are available in sizes $\frac{1}{2}$ " through 1½". Larger diameters up to 4" are available as standards.

They are made of bronze hose with standard size female or male copper tube ends, straight or bent; also available with threaded fittings.

Write for further information and specification sheet.

Flexonics Corporation

Flexon identifies
products of Flexonics
Corporation that
have served industry
for over 50 years.



CHICAGO METAL HOSE DIVISION

1321 S. THIRD AVENUE • MAYWOOD, ILLINOIS

FORMERLY CHICAGO METAL HOSE CORPORATION

Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

Circle No. 93 on Reader Service Card

FOR promoting the theme of "Buy From Your Wholesaler," Wolverine Tube Div., Calumet & Hecla, Inc., has been awarded the Certificate of Public Relations Achievement, distribution and marketing classification, presented to it for the second successive year by the American Public Relations Association.

The official presentation cited the company for outstanding service to refrigeration, plumbing, and automotive wholesalers by repeated use of the theme in its advertising. It was estimated that the single phrase to promote buying from wholesalers has been repeated in Wolverine advertising more than 10 million times.

Wolverine's winning entry will be made a portion of the new Archives of Public Relations in the Library of Congress.

eight months ago, the big box has made it possible for Meyer to bake cakes, for example, once a week in place of the usual four to six times, and to maintain a sufficiently large frozen stock so that no customer will ever be disappointed. "This is important", Meyers said, "If we maintain a reputation for absolute dependability, a complete stock at all times, the customer will appreciate it and is certain to mention the fact to her friends. Among the latter there will be many who have found that the suburban shopping center bakery is frequently unable to stock enough of every item to give the customer any guarantee that she will find it whenever she comes in. Along with eliminating shopper disappointment in this

way, we have done away altogether with stakes, an important part of the better-efficiency program. With no stakes to discard and consequently no loss to be covered in the price of baked goods sold, we can offer a better price."

Incidentally, in refrigerating all of his baked goods, Meyer has only once or twice encountered any objection or resistance from customers. Most of them are thoroughly sold on frozen foods of all types and see no reason why the same sort of processing cannot be successfully applied to baked goods.

Out on the sales floor Meyer has utilized one 8 foot slanting refrigerated display case, originally designed for meats but converted to baked goods, and a huge custom-built refrigerator which can accommodate better than 200 cakes. Built to his own specifications at a cost of \$1,000, this polished maple hardwood display case has four separate doors at the rear, for ready access to the refrigerated cakes within, eliminating heat leakage and providing for better efficiency. Every passerby can see at a glance that the bakery refrigerates its entire cake stock and this carries a lot of customer-stopping value.

Lastly, Meyers had done over the bakery with a colorful sign and wall decorations. His huge neon sign, projecting up some 18 feet above the bakery, is visible for a mile either way, night or day. In addition, reproductions of favorite cakes in "natural color" on the wall at either side serve as constant reminders that Ted's Quality Bakery specializes in fine cakes.

WALLACE CO. TO SELL INDUSTRIAL EQUIPMENT

The formation of the Wallace Co., Bridgeport, Conn., which will be devoted to the sales, manufacture and installation of industrial refrigeration equipment has been announced by Lee J. Wallace. Wallace recently retired as vice president of the J. P. Salmini Co., Inc. Offices have opened at 1188 Main St., Bridgeport.

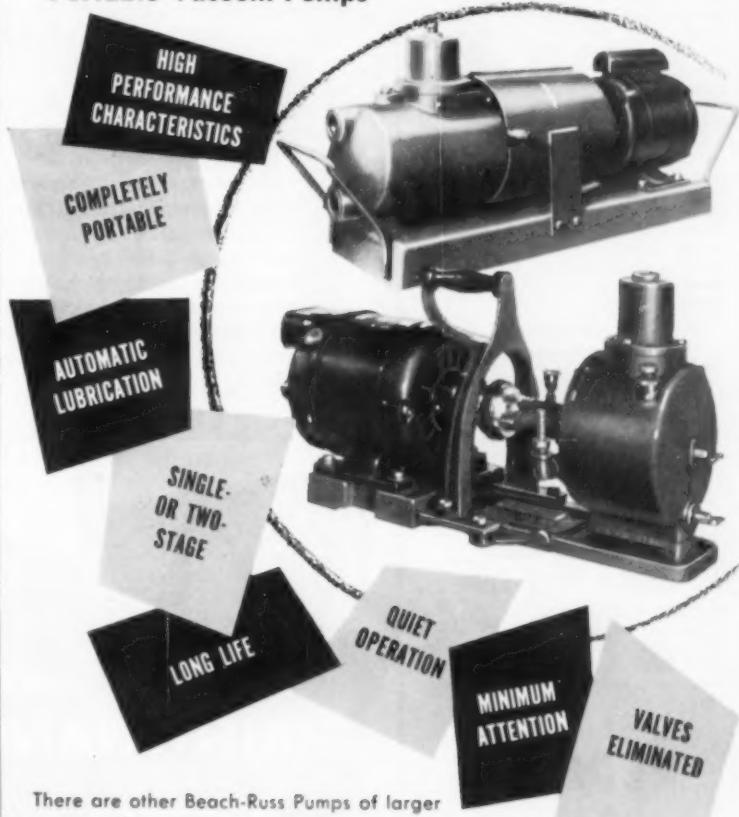
Everything

THE SERVICE MAN NEEDS

for Air-Conditioning and Refrigeration Test Work

is Found in BEACH-RUSS

Portable Vacuum Pumps



There are other Beach-Russ Pumps of larger capacity for evacuation of refrigeration equipment on a production basis.

BEACH-RUSS COMPANY

50 CHURCH STREET • NEW YORK 7, N. Y. DEPT. 56

Send descriptive literature covering

Model O Single-Stage Vacuum Pumps.

Model A Two-Stage Pumps.

Name _____

Company _____

Address _____

City _____

Zone No. _____ State _____

BEACH-RUSS COMPANY
50 CHURCH STREET • NEW YORK 7, N. Y.

Circle No. 94 on Reader Service Card

FINE

ICC REFRIGERANT CYLINDERS

Acclaimed by Safety Engineers!

LO-BOY TYPE

Maximum safety assured, FINE Cylinders offer your cheapest insurance against explosion danger! Their extra capacity decreases high pressure due to hydrostatic expansion. Heavier metal walls, thicker at ends. Broad base prevents tipping, offers extra valve protection. Forged brass valves with fusible safety. (Spring loaded safety, slightly extra.) Cylinders hammered gray finish. Caps included (except 5E). Sizes: 5E, 10L, 25L, 35L.



Write for Catalog



HANDY-TOTE CAP

Provides an extra hand for the busy service men to carry tools, tubing and parts. Saves trips to service truck. Standard cylinder thread. Quickly transfers from one cylinder to another. Built to last.

REDIFLEX



CHARGING

TYPE D

Truly flexible, full 36" length, with leakproof Rapid Couplers and forged brass, 1-piece, 45° E-Z FLOW L-BO. Two-ply construction; heavy inner gas-tite Neoprene Core. Non-kinking, tight weave, very flexible, luster coated cover. Knurled nuts for finger-tip tightening.

ASK YOUR WHOLESALER

Write for new Catalog
No. TTS2

Fine PRODUCTS CO.
6240 OGDEN AVE.
BERWYN (Chicago Sub.) ILLINOIS.

Circle No. 95 on Reader Service Card
120

PROFIT LEAKS . . .

Continued from page 56

of its original \$1100 cost. Installed against the left wall of the bakery, the case can readily accommodate 200 cakes or more, which, under constant refrigeration, can be held at least a week longer than in ordinary "dry case" display. All popular varieties, pound cake, angel food, devils food, chocolate, and other varieties, are alternated for color appeal in the case, and have proved to be just as salable eight to ten days after being placed in the case, as they were when freshly baked.

"We likewise use the case for many varieties of cookies," Gretchen explains, "and at night we store our coffee cake in it. We have found that where cookies are concerned, the cookie will appear hard when first removed from the case. After a few minutes time, however, as it comes back to room temperature, the original texture returns."

Sales people behind the counters of the Court Bakery unhesitatingly point out that their cakes are kept "oven fresh" in the big display refrigerator, and to date there never has been a complaint over loss of flavor, migration of flavor accents, or any other such factors, Gretchen points out.

"Our cake volume is three times that of the nearest competing bakery," he declares, "primarily because our customers know that they can get the type of cake they want, which requires only a few minutes of warming up to taste its best. Now, we can maintain an inventory of almost all types of cakes, schedule our production better to fit spare time, and cease to worry completely over the problem of stale baked goods."

NAMED BY SHANA

Appointment of Leon Bennett Associates as sales representative in Georgia, Florida, Alabama and Tennessee has been announced by Shana Mfg., Inc.

CARVER PUMPS
are virtually
MAINTENANCE-FREE
because

MECHANICAL SEAL permanently seals against shaft leakage. No expensive time or material required to service these pumps.

FRAME BEARINGS ARE GREASED FOR LIFE and positively sealed against dirt and water.

Trouble-free and maintenance-free, CARVER PUMPS are "Your Best Buy for Better Performance."

Write for complete information today.

CARVER PUMP CO., 1468 Hershey Ave., Muscatine, Iowa



The quality name in pumps

Circle No. 96 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION



Adequate refrigeration is a "must" in these large ice cream trailers employed by Borden's. It uses a combination of a Kold-Trux Mobilmatic unit with Kold-Hold Hold-Over plates to provide continuous automatic refrigeration. Body by Murphy Body Works.

Cleaner, colder products, more satisfied customers, night-before loading and overnight holdover are advantages cited by Anthony Pure Milk Company of Nashville, Tennessee, by using Hold-Over plates in their milk delivery trucks. Pointing out it cost the dairy \$7 a ton for ice, the president of the firm reports, "We produce better cooling results now for \$2 a ton."

now! refrigerate your trucks automatically, permanently, economically

Save time and trouble by installing Kold-Hold systems to refrigerate your trucks. Kold-Hold and Kold-Trux systems save time every day in many ways — no dry ice to handle, no product spoilage, no need for moving unsold merchandise into cooling rooms at night. Kold-Hold Hold-Over systems keep products cool and fresh all day — Kold-Trux systems give refrigeration night and day turning your trucks into cold storage rooms on wheels! Whatever your needs, you can depend on a Kold-Hold system to provide trouble-free refrigeration at low cost. Kold-Hold's know-how and experience in solving truck refrigeration problems for over 24 years insures your getting the right answer to yours. Investigate today the wide variety and combinations Kold-Hold offers, such as Kold-Trux Mobilmatic units, mounted compressors and make-and-break assemblies combined with Kold-Hold Hold-Over plates, Light-duty plates, Serpentine Quick-Action plates and Hydro-Pack blowers.



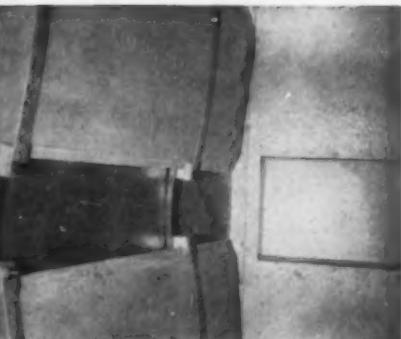
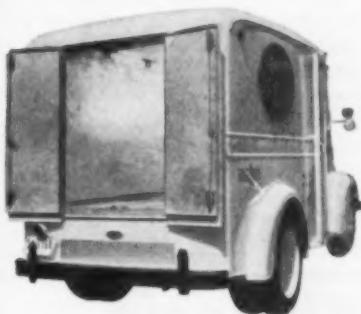
7 ways to refrigerate your trucks and trailers are explained in the new Kold-Trux Catalog No. KT-155. Write for a copy today.

Look to Kold-Hold for the latest developments in Truck Refrigeration

KOLD-HOLD®

division

TRANTER MANUFACTURING, inc., 503 E. Hazel St., Lansing 4, Michigan



Southern Minnesota Body and Millwork Company of Austin, Minnesota, has equipped approximately 150 trucks, like this one for Marigold Dairies, with Kold-Hold Hold-Over plates to keep milk products at proper temperatures. The trucks, after 8 hours of route work, come in with the temperature below 51 degrees.

"Whenever I have a truck to refrigerate, I know I can rely on Kold-Hold plates for the lowsides," Walter R. Dorn of Telford, Pennsylvania, reports. Asserting complete reliance can be placed in the BTU capacity ratings of Kold-Hold Hold-Over plates, Dorn adds, "Over the last 10 years, I have installed many Kold-Hold plates in refrigerator trucks used for meat and frozen food delivery."

Circle No. 97 on Reader Service Card

NEW FACE . . .

Continued from page 47

near the ceiling, reminding customers that within the same large room they will find: "Postoffice, telephone agency, utility collections, notary public, emergency delivery, and grocery items."

The same sign also reminds the customers that the store is "air conditioned for your comfort."

Siegel has one normal temperature open top case now located near the entrance door, at one end of a side-wall soda fountain. He keeps milk, cream, packaged bacon, cheese, and similar items in this cabinet.

Across the main aisle which faces the soda fountain, and which extends between the front door and the prescription counter at the rear, is a self-service ice cream case and about 30 feet of shelving containing staple and fancy, non-cooled groceries.

In a secondary aisle, with its back against the back of the ice

cream case, is Siegel's present frozen food cabinet in which he stocks an assortment of packaged vegetables, pre-cooked items, and other frozen goods.

"That is not a good place for the frozen food cabinet," the proprietor says. "We'd sell much more if we could re-arrange the store to give it a better location."

Plans Expansion

Nevertheless, Siegel asserts that frozen food sales have been sufficiently gratifying to persuade him that when he opens another drug store — now being planned — he will at least double the space for refrigerated items and will have them placed in a preferable location.

Siegel points out that his food sales are in a satisfactory volume despite the existence of a regular food market just a short distance away. Also, the location of the new store he is planning is near to a large super market.

"Competition from the regular food markets doesn't worry us," he says. "We handle food items

only in part for the profit directly in them. What concerns us more is the good will we build by providing food items as a convenience for our customers."

Although he concedes that relatively few drug stores as yet have begun stocking food, Siegel asserts, "Wherever I travel down through the state, for example, I notice more and more drug stores that are now taking it up."

Of course, unusual competitive situations may make food selling less attractive to some drug stores. For example, in Toledo also, there is the case of the Saultier Pharmacy in a new shopping center which it shares with various shops and with a Bellman's super market.

This drug store carries a small assortment of frozen foods, especially of the pre-cooked variety, in one case at the front end of its soda fountain and stocks a line of dairy products in a cooler at the opposite end.

But because the Bellman market is open until 9 p.m. on week-days and even until 6 p.m. on Sundays, the volume of refrigerated food

Pinnacle... is the Quality Line!



SINGLE-DUTY SELF SERVICE CASE

Small store operators are cramped for space and need this refrigerated space-saving case to eliminate spoilage of perishables. GOES THROUGH 36" DOORWAY. Has all the features grocers want — Large storage and display areas . . . Removable storage bins . . . Gleaming white life-time porcelain on exterior front ends and wearing surfaces . . . Low operating cost, etc. Comes in 6' 8" and 10' foot lengths. Self-contained models also available. BIG PROFITS FOR YOU, MR. DEALER!

A few Pinnacle Territory Franchises are still available. Wire or write today for full information and illustrated literature!

Pinnacle
EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA
EXPORT DEPT.—39 Broadway, New York

Circle No. 98 on Reader Service Card

BIG BUYS IN SMALL PRECISION FLOAT CONTROL VALVES

For controlling water in humidifying units, pan fillers, air conditioning equipment, evaporative coolers, and air washers. No. 51 and 52 Valves accurately maintain water lines as low as 1" deep. Float adjustable. See your jobber or write us.

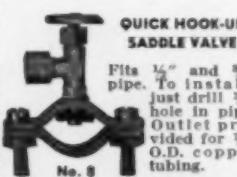


No. 51



No. 52

Only 5 1/2" long overall. Non-corrosive metals throughout. Easy to install by drilling one hole. Capacity 1/2 gal. per minute at 50 lbs. pressure.



No. 8

QuICK HOOK-UP
SADDLE VALVE
Fits 1/2" and 3/4" pipe. To install, just drill 1/2" hole in pipe. Outlet provided for 1/4" O.D. copper tubing.



No. 816

HANDY NEEDLE
VALVE
Ideal to control water supply to humidifiers and water valves. 1/4" I.P. male end and 3/8" O.D. copper tube size outlet.

Manufacturers of Heating and Air Conditioning Specialties

MAID-O'-MIST, Inc.
3317 NORTH PULASKI ROAD, CHICAGO 42, ILLINOIS



Circle No. 99 on Reader Service Card

sales at the Saulter pharmacy probably isn't as large as at the Fairmont drug store.

Nevertheless, there is still a steady sale of these goods at Saulter's especially during the rush-hours at Bellman's. "Customers who are in a hurry and need only one or two refrigerated items find it more convenient to get them from us," a clerk at Saulter's observed. Also, there are sales in the same place to customers who intended only to buy some typical drug store item but who decide on an additional purchase when they see something that makes an unexpected appeal in the pharmacy's self-serve cases of food.

WHOLESALEERS ATTEND BUSH MEETING

A sales and indoctrination meeting of Bush and Heat-X wholesalers in the Pacific Northwest was held recently in Seattle, Wash. O. M. Butler, district sales manager, assisted by Jerry Braden and David Dufur conducted the program. Wholesalers represented included Refrigerative Supply, Ltd., Vancouver, B. C., Refrigerative Supply Ltd., Calgary, Alb., Thermal Supply Co., Seattle, Wash., Thermal, Inc., Spokane, Wash., Peerless Pacific Co., Portland, Ore., and Thermal Supply Co., Yakima, Wash.

NEW FIRM SET UP TO MAKE HEATERS

Formation of a new company, Sterlairco, Inc., owned jointly by U. S. Air Conditioning Corp., and by Heat Specialties Div., Sterling Radiator Co., Inc., has been announced. The new company, with offices and factory in Westfield, Mass., will take over the manufacturing, sales, and distribution of Usairco and Sterling gas-fired unit heaters.

G. H. Stenner, president of Sterling's Heat Specialties Division, will also serve as president of the new company.

BUY FROM YOUR
REFRIGERATION WHOLESALER

AUTOMATIC air conditioning

SELLS FASTER

TALK ABOUT CUSTOMER BENEFITS!



A MODEL FOR EVERY
SIZE AIR CONDITIONER



GET THE FACTS, MAN

We'll show you how you can increase sales and profits.

Mail this Coupon Today

INTERNATIONAL REGISTER CO.
2624 W. Washington Blvd., Chicago 12, Ill.
Please send me Bulletin No. 65M1 on the Intermatic Time Switch way to more profits.

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

Circle No. 100 on Reader Service Card

any way you
look at it...



COMPLETE HOME AIR CONDITIONING UNITS!

- Greater profits at minimum investment
- Popular appeal and tested sales plan
- Labor-saving installation and trouble-free operation



AIR-COOLED or WATER-COOLED

Individual or combination
units for any home in any state



EXCLUSIVE TERRITORIES STILL OPEN

Write, wire or phone today



SHANA MANUFACTURING, INC.
655 W. Randolph Street, Chicago 1, Illinois

Gentlemen:
I am interested in knowing more about SHANA-AIR HOME AIR CONDITIONING.
 DEALER DISTRIBUTOR MFG. REP.
Others please specify

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

Circle No. 101 on Reader Service Card
124

IT TAKES TWO ...

Continued from page 49

by many of the people in the bakery business.

One of these advantages, usually more apparent to customers than to the bakers themselves, is the effect of fresh air on the appetite, and its effect on the customer's purchases.

Probably everyone will agree that the pleasing odor of fresh-baked bread—if it could be "segregated"—would tend to be a stimulator of sales. But when it is mingled with the odors of oil as used in frying doughnuts, or hot shortening in pies, and with the cloying effect of a super-concentrated smell of sugar, molasses, and syrups, the combination may be quickly destructive to appetite. Under such circumstances, the odor tends to repel the customer and to reduce the volume of his purchases.

Such odors are easily overlooked by people who work in bakeries because they become in-

ured to them. Nevertheless, in most bakery shops this is a problem still waiting for air conditioning to solve.

Also, in most bakeries there is another point of merchandising that remains to be solved by an additional application of refrigerated display cases. These can be either of the service or self-service type. Either way, they are the best-of-all assurance of keeping all kinds of baked goods from contamination, from souring, or other forms of spoilage during the period when they are on display. In the case of eclairs, custards, and cream-filings, continuous refrigeration can be virtually an absolute "must."

Of course, refrigerated sales cases also eliminate the main problem of flies.

Finally, most bakery shops might very well use display cases for frozen foods also, as a further aid to selling. Why not, in such manner, tempt the customer-in-the-store to think of Thursday's needs while doing Tuesday's shopping?

Relatively speaking, Maurice Fitzpatrick's neat-and-clean bakery

BLOOD CLOTS ARE DANGEROUS
— SO IS WATER IN THE
REFRIGERANT.

FLO*



PREVENTS VALVE FREEZE-UP

Flo's "one-shot" handy tube contains the right amount of proved chemical dehydrant to protect systems charged with up to 2 lbs. of refrigerant.

Carry the convenient 36 tube carton in your service car at all times for immediate, on-the-job service.

*Flo is a carbonaceous containing no dissolved solids, caustics or acids. Also available in the popular plastic dispenser-type bottles.

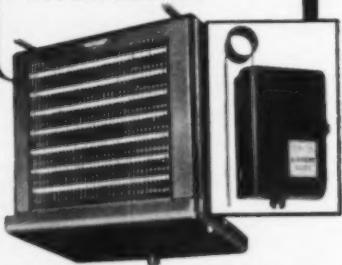
Sold by leading wholesalers
everywhere

Allin MANUFACTURING
COMPANY
1153 West Grand Ave., Chicago 22, Ill.

Circle No. 102 on Reader Service Card

LARKIN MEANS LOW OPERATING COSTS

FROST-O-TROL® AUTOMATIC
HOT GAS DEFROSTER



The purchase price of any product is often misleading, for it precludes the cost of long-run operation. All Larkin products are engineered for the lowest possible operating costs, yet they are priced right. That's why Larkin leads the field for long-run, low-cost operation.

Manufacturers of the original Cross-Fin Coil
 Humi-Temp Units Frost-O-Trol Hot Gas
 Evaporative Condensers Cooling
 Towers Air Conditioning Units and Coils
 Direct Expansion Water Coolers Heat
 Exchangers Disseminator Pans

WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS
819 MEMORIAL DR., S.E. • ATLANTA, GA.



Circle No. 103 on Reader Service Card
JUNE, 1955 • COMMERCIAL REFRIGERATION

at Flat Rock is already among the more foresighted establishments of its kind. Yet, almost anywhere in the bakery field there is evidence that refrigeration and air conditioning have so far been applied to only a minor portion of the vast practical potential.

WHY GIVE AWAY 15%? . . . Continued from page 52

mixing of syrup and carbonated water, in place of the separate arms for syrup and soda employed in the old-style fountains. Also, sinks are being eliminated from some new soda units, because it has been found that they will not meet the sanitary requirements imposed upon the varied types of food service installations in which they are now being installed.

What does all this mean to the average commercial refrigeration dealer or distributor? It means that now, more than ever before, there is a definite opportunity for him in the merchandising of soda fountain equipment. Today, as a result of all these changes in food service practices and soda fountain design, there is a potential market for fountain equipment wherever there is a food service operation.

Equipment Is Available

To meet this new situation, manufacturers of fountain equipment are beginning to broaden their lines by including the manufacture of sandwich units and similar pieces of equipment. On the other hand, manufacturers of food service equipment have begun to offer certain types of fountain units.

At the distributing level, just as the specialized soda fountain organizations such as ours have been forced to broaden their scope of operations by taking on the merchandising of other types of food service equipment, so some enterprising commercial refrigeration distributors have begun to sell soda fountain units. After all, there's no longer any reason why they should draw the line at fountain equipment when selling food service installations. They might as well get that other 15% of the job!

FLARE IT! SOLDER IT!

One Revolutionary Valve For Flare or Solder



2 Way DIAPHRAGM SHUT OFF VALVE With *T-S CONNECTIONS

- Can be used as a charging or drain valve ↑
- Cuts inventory 50% ↑



*Pat.
Pend.

AVAILABLE IN THE FOLLOWING SIZES:
Part No. L2V-4 with $\frac{1}{4}$ " T-S Connection—Wt. 1 lb.
Part No. L2V-6 with $\frac{3}{8}$ " T-S Connection—Wt. 1 lb.
Part No. L2V-8 with $\frac{1}{2}$ " T-S Connection—Wt. 1 1/4 lbs.
Part No. L2V-10 with $\frac{5}{8}$ " T-S Connection—Wt. 1 1/2 lbs.

Features:

- Metal-to-metal backseat when valve is fully opened
- Controlled stem travel assures long lasting trouble free diaphragm performance
- T-S Connections (flare or solder)
- Finest quality forged body
- Easy grip oval handle for easy operation
- Finest quality long wearing seat insert
- Unrestricted flow
- Operates with pressure or vacuum in either direction

Flare It! Solder It! Take your choice: It can be done both ways. As an added feature you can flare one end and solder the other. But that's not all! An ingenious arrangement of inserts permits even greater flexibility. Now it's possible to flare $\frac{3}{8}$ " tubing on one end and solder $\frac{1}{4}$ " tubing on the other, and up to many different combinations. See diagram and charts.

EXAMPLE L2V-6 ($\frac{3}{8}$ "')

For all possible installations see chart.	
For $\frac{3}{8}$ " flare installations or $\frac{1}{4}$ " solder. Allow insert to remain.	
For $\frac{5}{16}$ " solder installation reverse insert.	
For $\frac{3}{8}$ " solder installation remove insert.	

COMBINATIONS	PART NO. L2V-4 (1/4")	PART NO. L2V-6 (3/8")	PART NO. L2V-8 (1/2")	PART NO. L2V-10 (5/8")
1/8" x 1/8"	Q			
1/4" x 1/4"	Q			
1/4" x 3/16"	Q			
1/4" x 1/8"	Q			
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3/8" x 1/2"		Q		

SEND FOR WATSCO'S NEW 1955 CATALOG!



WAGNER TOOL & SUPPLY CORP. REFRIGERATION PARTS & TOOLS

40-08 22nd STREET, LONG ISLAND CITY, L. N. Y.

Circle No. 104 on Reader Service Card

BRYANT ACQUIRES OFFICE SITE IN INDIANAPOLIS

In connection with the establishment of national headquarters of the Bryant Div. of Carrier Corp. in Indianapolis, the firm has acquired an industrial site for administration, sales, engineering and research offices across from the Bryant manufacturing plant at 1100 West 21st St.

The purchase follows closely the announcement that Bryant is moving its home offices from Cleveland to Indianapolis.

OPENS HOUSTON OFFICE

General Air Conditioning Corp., Los Angeles, announces the opening of a Houston, Tex. office at 915 Alabama Ave. The Houston regional office will be managed by John Boethling.

The company also maintains branch sales offices and warehouses in San Francisco, Seattle, Chicago, New York, Miami, Tampa, Boston, Philadelphia and Cleveland.

FLORIDA TRIP IS SALES CONTEST AWARD



FIVE WINNERS in a commercial refrigeration sales contest conducted by Warren Co. enjoyed a fishing frolic in Florida as guests of the company as their prizes. Shown departing on the trip are (left to right) Roger Jacobs, Warren's executive vice-president; the contest winners, J. Wesley Rice, Martinsburg, W. Va., Raleigh Darnell, Seattle, Wash., Harry Gold, Montreal, Que., C. J. Ledbeter, Orlando, Fla., and J. D. Gardner, Nashville, Tenn.; also Earl Barton, assistant sales manager, and T. E. Scarbrough, treasurer.

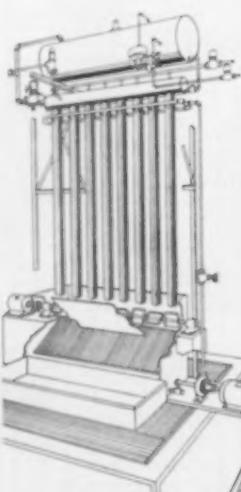
TWO FIRMS NAMED

Appointment of Irvington Co., Buffalo, N. Y., and B. H. Nunnally, Syracuse, N. Y., as territorial representatives has been announced by Mammoth Furnace

Co. The former's area will be western New York and northwestern Pennsylvania. The latter will serve eastern New York except for the New York City and nearby counties.

You Harvest Bigger Profits

with a



Shell-Ice MAKER

Ideal for dairies, fisheries, poultry and vegetable packing houses, hotels, institutions, industrial plants, etc. Shell-Ice is frozen on vertical tubes by direct-expansion ammonia or Freon, in thicknesses of $\frac{1}{8}$ " to $\frac{1}{2}$ ", and is broken by spinners to size desired. No snow, scrapings of waste; no scale, no cleaning. Shell-Ice is dry and hard, and with average good water is clear. This ice maker is fast, efficient, and automatic. All-steel construction; no delicate parts. Requires very small floor space. Sizes $\frac{1}{2}$ to 30 tons capacity. Dozens already in service. Write for Bulletin 54.

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA.
U.S.A.

Circle No. 105 on Reader Service Card

126

INCREASE SALES AMERICA'S MOST COMPLETE AND FINEST LINE of COOLERS

BEVCO



Here's DRY refrigeration at its best. Here's trouble-free performance that tells—and sells! The BEVCO 5-year warranty guarantees superior service. Accessories that are sales makers — water equipment, dividers, casters, stainless interiors, exteriors available on all models.

RESULTS COUNT!

The BEVCO Company, Inc.
3316-28 S. BROADWAY • ST. LOUIS 18, MO

WRITE FOR
CATALOG C1

Circle No. 106 on Reader Service Card
JUNE, 1955 • COMMERCIAL REFRIGERATION

PENN NOW HANDLING 'QUIET MAY' LINE

Penn Boiler & Burner Mfg. Corp., Lancaster, Pa., has announced it will market the "Quiet May" and "Econ-O-May" line of burners, boilers, and furnaces under a license arrangement. It had been manufacturing these products for a number of years.

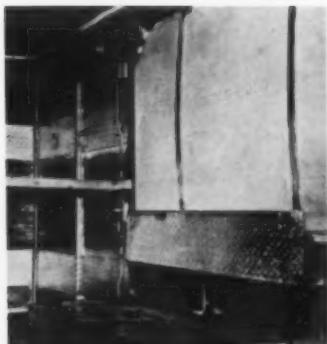
J. O. Miller and E. R. Schuelke, who were field representatives for Quiet May, were named district managers under the new arrangement. R. W. Peyton, Penn's assistant sales manager, will head the Quiet May division with his offices at Lancaster.

ARMSTRONG TO HANDLE 'ARMAGLAS' PRODUCTS

The full line of "Fiberglas" industrial insulations made by the Owens-Corning Fiberglas Corp. will also be produced for the Armstrong Cork Co. which will market them under the trade name, "Armaglas."

While the Armaglas products will be basically the same as those marketed by Owens-Corning, it will be made to Armstrong's own specifications.

Armstrong entered the low temperature insulation business more than 50 years ago, expanded into the high temperature field in the



BEER FLAVOR is protected in truck transit of kegs, and operating economies will be achieved, by this form of mobile refrigeration, used by Porterfield Distributing Co., Roanoke, Va. "Kold-Hold" plates are used to keep temperatures between 35 and 38 F on nine-hour delivery routes. Time and mileage are saved because this refrigeration eliminates need for smaller loads and frequent returns to the warehouse.

late 1930's and today carries on a general insulation business on a national scale, with its own contract insulation service.

Owens-Corning created Fiberglas in the late 1930's and has developed it into the most complete line of incombustible industrial insulations, winning wide acceptance in both the high temperature and low temperature fields.

BUY FROM YOUR
REFRIGERATION WHOLESALER

number 2 in a series of ads to help you better understand the servicing of hermetic compressors.

HERMAN HERMETIC says

"Your service warranty is valuable to you and your customer"

Your Tecumseh service warranty protects both you and your customer from loss due to mechanical failures. Assure yourself of maximum protection by following these simple rules:

1. Always use the exact compressor or electrical part replacement as specified by the factory.
2. Do not charge an F-12 compressor with F-22 or an F-22 compressor with F-12.
3. Do not leave a system open to the atmosphere longer than necessary.
4. Do not break solder joints until system pressure is down to 0 p.s.i.g.
5. Use hard solder for all solder joints.
6. Do not use any kind of liquid drying agents.
7. If moisture is suspected, install a suction line dryer and replace the liquid line dryer with a new one.
8. If the compressor motor burns out, the system must be flushed with a good solvent to remove acids and sludge.
9. Check the entire system for leaks with a leak detector or Halide torch.

Follow these rules and you will avoid the major reasons for compressor failure.



TECUMSEH PRODUCTS
TECUMSEH, MICH.
MARION, OHIO
EXPORT DEPT.:
P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.

Circle No. 107 on Reader Service Card

World's Largest
Producer of
Compressors for the
Refrigeration Industry

BALANCING . . .

Continued from page 55

required in the discharge line beyond the by-pass line to prevent flow from the condenser to the compressor suction when the solenoid hot gas valve is open.

Another solenoid valve application for capacity control is the use of a 3-way type solenoid valve with certain compressors. In this case, the solenoid 3-way valve is a pilot operator of the unloading mechanism built into the cylinder head.

In many installations, it may be necessary to start the compressor unloaded. This may be due either to:

- (1) the type of motor used;
- (2) unusually high starting suction pressure; (3) power cost considerations.

In the latter case, "demand" type power meters may make it advisable to reduce the starting load on the compressor motor. The solenoid hot gas valve may be very easily used on this application by installing it in a by-pass

between the compressor discharge and the compressor suction. In this application the solenoid hot gas valve should be open when starting the compressor to reduce the starting load. When the compressor comes up to full speed, the solenoid hot gas valve should be closed and the system will function normally.

The operation may be made completely automatic with the use of a time-delay relay to close the valve after the compressor has come up to full speed. In this case, the solenoid hot gas valve should be wired on the line side of the motor starter or in parallel with the motor starter relay. A check valve is required in the discharge line beyond the by-pass line to prevent flow from the condenser to the compressor suction when the solenoid hot gas valve is open.

SOLENOID VALVES FOR BRINE, WATER AND OTHER APPLICATIONS

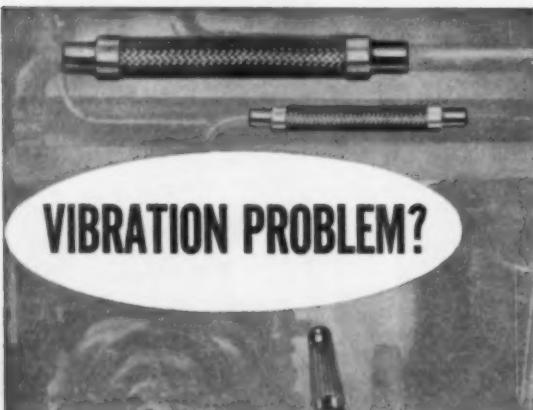
The use of a solenoid valve on refrigerating systems using brine as a cooling medium is an important one because it may be ap-

plied either as a by-pass or as a stop valve. On multiple or series systems, where independent temperatures must be maintained in several units fed by one brine pump, a number of these valves may be used to control the brine circulation. As the individual units come down to temperature, the flow of brine to the coils is cut off or by-passed by the solenoid valves operated by thermostats placed in the corresponding units.

Solenoid valves are frequently used to control the flow of condensing water. Even though a condensing water regulating valve is used, a solenoid valve reduces the water cost by stopping the flow of water as soon as the compressor stops. Then the water line remains tightly closed until the compressor is started again.

Other typical refrigeration applications can be found in the use of solenoid valves for heat pump reversing valves, hot gas shut-off valves when defrosting and shut-off valves in pneumatic control systems.

(To be continued)



When thinking of Vibration Absorption,
think of PACKLESS, the quality product.
Largest size range available in the field—
1/4" to 10%".

Write for Bulletin VA-3



31-10 WINTHROP AVE.

Circle No. 100 on Reader Service Card

NEW ROCHELLE, N.Y.

128

NOW...LOW COST EXTRA REFRIGERATION WITH THE NEW

KOOL' KLOSET



Again, La Crosse engineering sweeps the field with this low cost answer to the demand for extra refrigeration space. The KOOL' KLOSET walk-in, reach-in cabinet is ideal for all 'round storage of countless items . . . at a low, low price.



KOOL' KLOSET features . . . the new La Crosse self-contained refrigeration system, grey baked enamel exterior, 3" spun glass insulation, rugged hardware with inside release, sizes 34" wide and 62" wide.

WRITE TODAY for complete information

LA CROSSE COOLER CO.

3002 LOSEY BLVD.

Export Office: 80 Broad St., New York — Cable: EXimport

Circle No. 79 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

LA CROSSE, WIS.

IT LOOKED TOUGH . . .

Continued from page 75

Finally, removable tarps were specified for winter covering of the units.

Estimate for the complete three-floor job was only \$16,000, including the wiring. Even more surprising, the actual bill turned out to be almost \$2000 less than the estimate—in contrast to the earlier estimate that a central four-floor system would cost \$137,000, and in contrast to the commissioners' calculation that not more than \$70,000 could be available!

One item, besides the fourth floor, was omitted with official consent. A console-type, 1-hp room conditioner had been recommended for a corridor location on the third floor. This was specified because the commissioners feared that even with office doors left open much of the time there would be an undesirable contrast of cool offices and warm halls. Early testing of the window units established, however, that air circula-

tion would take care of the halls as well as of the offices themselves.

There still remained only to submit the system of 39 window units to the supreme test of a Wichita summer; and what a test it turned out to be! The whole summer—last year—was exceptionally hot in Wichita. But the entire month of July was the hottest ever recorded by the local weather bureau. Temperatures often ran as high as 113 F. The average high for the entire month was 102.6 F.

But down at city hall, the 39 window conditioners had no difficulty in maintaining the inside temperature at a comfortable level. For the first time in years, city hall employees went through the hot months at peak efficiency. For the first time, employees stationed in rooms without windows found it unnecessary to take refuge in the outer-wall offices. Even the corridors were comfortable.

"Our experience with the window units has shown that old buildings can be effectively air conditioned and at reasonable cost, even though old-time build-

ers made no provision for it," says John Pierce, city purchasing agent.

Now the city commissioners have approved air conditioning to be installed in the police building also. "But we are not air conditioning the jail," said Police Chief R. B. Price. "We just didn't think that would be necessary."

SUNBEAM TIED CLOSER TO AMERICAN-STANDARD

Effective at once, the Sunbeam Air Conditioner Div. of American Radiator & Standard Sanitary Corp. will be known as the Air Conditioning Div. of American-Standard.

T. W. McNeill, president of the division, said that the change in name will enable the air conditioning operation to capitalize more fully on the corporation's trade name.

Concentration on the more widely known "American-Standard" will facilitate expansion in the field of summer and winter air conditioning, McNeill stated.



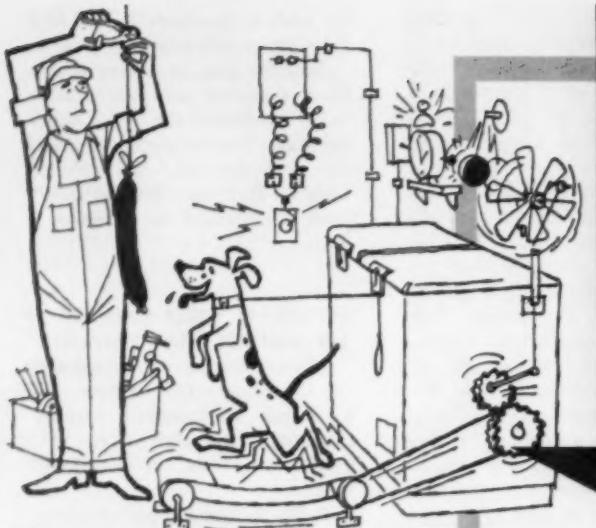
HOT
OR
COLD

CONDENSATE DISPOSAL UNIT

This completely automatic foolproof unit removes hot or cold condensate fluids from the receiver tank and pumps it to an outside drain. Designed for simple installation in air conditioning units, the Eastern Condensate Disposal Unit offers low operating cost with fully automatic control and quiet, reliable operation. Free specification sheet CD-10 on request.

Eastern
INDUSTRIES, INC.
100 SKIFF ST., HAMDEN 14, CONN.

Circle No. 110 on Reader Service Card



There's a
Simpler
way...



Ranco Controls

for exact automatic defrost replacements

Stands to reason that the exact automatic defrost replacement saves you installation time . . . earns you a neater profit on a neater job. That's why it's wise to specify a Ranco Control for every replacement. You save time, you save money . . . you save a customer.

See your Ranco wholesaler for the right control. Install Ranco . . . to be sure.



Handy Replacement Reference

No. 1544 shows you the right replacement control for the job. Over 5,000 controls listed . . . largest line in the industry. This manual not available from the factory. Buy your copy today from your Ranco wholesaler.



Ranco[®] Inc.

COLUMBUS 1, OHIO

WORLD'S LARGEST MANUFACTURER
OF REFRIGERATION CONTROLS

Circle No. 111 on Reader Service Card

JUNE, 1955 • COMMERCIAL REFRIGERATION

THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

Right and Wrong Way of Bending, Flaring Tube

Bending and flaring tubing is something a refrigeration serviceman does almost every working day of his life. As with most other things, there definitely is a *right* and *wrong* way to perform these operations. Yet it is surprising how careless some servicemen become about this very important phase of their work.

For the benefit of those servicemen who may have slipped into some poor tube working practices, as well as for those apprentices who are still learning the tricks of their trade, Wolverine Tube offers these practical pointers.

Be careful when bending soft, annealed tubing in the field or under conditions where proper tools are not available. Remember the tubing is apt to kink if bent with one quick motion. Don't sacrifice your tubing — much less,

your reputation—for the sake of speed.

Grasp the tube in both hands, leaving about 3" of bending area between your thumbs. When you start the bending motion, slide the thumbs towards each other along



the tubing exerting an even pressure. Repeat this until the tubing has been bent to the desired shape. A half dozen times is usually enough for a $\frac{3}{8}$ " tube.

When bending a larger tube, start with the hands farther apart and work the tubing to the required shape more slowly.

Flaring of tubing is one of the most important operations in making joints or connections. While it is comparatively simple to flare tubing, the operations that are used separate themselves into two categories: *right* and *wrong*.

Here's the *wrong* way: (1) Cut the tube to length; (2) forget the burr from the cutting operation; (3) try to flare the tube. And here's what happens — the thin burr section is the first to be cold worked during the flaring operation, which results in cracking of

the tube. A crack, once started, travels into and through the tube wall, leaving the whole flared section useless.

Here's the *proper* way: (1) Cut the tube to length with a hacksaw or tube cutter; (2) remove burr with knife or file; (3) accomplish actual flaring by using a clean, smooth standard flaring tool. Results — a clean, perfect flare which will contribute to a leak-proof joint and a good sound connection.

How To Solder Fittings By Air-Acetylene Torch

Some helpful hints for joining solder-type fittings with the use of an air-acetylene torch are offered in a recent issue of *Linde Tips*, issued by Linde Air Products Co.

Whether you are installing new fittings or repairing old ones, this bulletin advises, it is always necessary to clean them thoroughly before soldering. After cleaning the outside of the pipe and the inside of the fitting with fine steel wool, apply a thin, uniform coat of non-corrosive flux to the cleaned areas.

Then insert the pipe into the fit-



WANT TO EARN \$5?

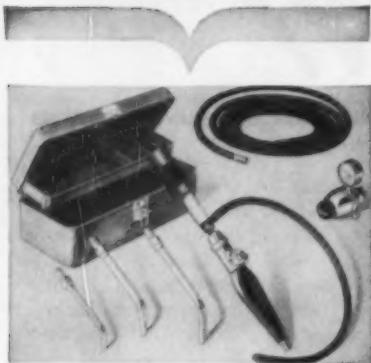
You don't have to be a literary genius to pick up a fast fivespot. All you have to do is jot down some of the shortcuts you've developed in your maintenance or installation work and send them to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor votes "yes" on your contribution, your \$5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!



QUITE often, when re-flaring old tubing, the flare tends to split. To overcome this difficulty, I first heat the end of the tubing that I intend to flare, thereby annealing it and making it as easy to handle as if the tubing were brand new.

Gilbert Friesenhahn
Macdonal, Tex.

DETECT LEAKS * SOLDER * HEAT



PREST-O-LITE Trade-Mark REFRIGERATION AND AIR CONDITIONING OUTFIT

This air-acetylene outfit easily handles all your soldering, heating, and leak detecting work. No liquid fuel to spill. No pumping, priming, or wasted time. The three open flame stems and halide gas leak detector unit are instantly interchangeable on a common handle. One handy kit with a flame for every job. See your LINDE jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Dominion Oxygen Company, Toronto.



Fully adjustable gas pressure regulator insures perfect flame control. Torch handle has shutoff valve and built-in pilot flame control for convenience and economy.

Get it from your LINDE jobber



The terms "Prest-O-Lite" and "Linde" are trademarks of Union Carbide and Carbon Corporation.

Circle No. 112 on Reader Service Card
132

ting as far as it will go. If possible, revolve it once or twice to spread the flux evenly.

Heat the circumference of the fitting evenly with the flame of an air-acetylene torch. As the fitting becomes heated, keep the flame moving to prevent overheating.

Occasionally test the heat by touching the solder to where the pipe and fitting join. As soon as the fitting is hot enough to melt the solder draw back the flame.

Apply solder all around the fitting. Enough solder to make a sound joint will be sucked in by capillary action. When a line of solder appears completely around the fitting, the joint has all the solder it will take.

Allow the connection to cool for a moment, then slightly reheat and try to feed solder to make certain that the joint is filled. Complete the job by removing excess solder and flux with a fine brush and hot water.

BUY FROM YOUR REFRIGERATION WHOLESALER



For New and Old Construction

"Miraculously Quiet" Zone Air, ideal for hotels, motels, hospitals, offices and other applications where silence is essential. No costly duct work—no tearing out partitions in existing buildings—simply connect pipes from unit to a cooling or hot water system.

Used with direct expansion, combination heating and cooling with water or direct expansion and steam—individual control. 14 sizes: 300 to 1200 CFM. Concealed or cabinet type models.

Write for information

A. H. WITT COMPANY
940 N. Sycamore Av., Los Angeles 38



OVER 30 YEARS
RELIABLE SERVICE

Circle No. 113 on Reader Service Card

Special Technique Needed For Low-Temp Service

Seldom does a home refrigerator compressor break down these days. For that reason, they are guaranteed 5 years. It's a different story, however, in production of temperatures below -40° . A somewhat special technique is used in ultra-low temperature equipment.

Sludge and carbon caused by high heat are the biggest cause of compressor breakdown, service men report.

Here are some suggested corrected measures:

1. Maintain the best possible condensing medium.
2. Be sure to eliminate all non-condensable gases.
3. Keep the suction gas as cool as possible, both from the evaporator and between stages on multi-stage systems.
4. Have the best possible valve plate and compressor efficiency.
5. Multi-stage below -40° .
6. Use a good oil separator.
7. Slow down the compressor in cases where everything else fails. If the capacity is then below the requirement, use a larger compressor.

I DO IT
THIS WAY

Ice cube maker

Drain line

In servicing Frigidaire ice cube makers, if the storage bin overflows with water even though the drain is open, it is a sure sign that the drain is air logged. This situation can be corrected by the following procedure:

Drill a hole on the top side of the drain line and solder a piece of $\frac{1}{4}$ " tubing into it. Bring the tubing up to the rear of the cabinet, above the drain level, and bend the end into a "gooseneck". With the free end of the tubing pointing down, there is no chance for any dirt to get into this air line and plug it.

Albert J. Delpiaz
Dennison, Ohio

GIVE A CHOICE . . .

Continued from page 73

As a case in point, King likes to recall a theater job in Sharon, Pa., upon which the Roth firm entered a bid. "The original specifications," he recollects, "called for the installation of six 20-ton packaged units, or a total of 120 tons of cooling. Looking at the drawings, this sort of a setup just didn't seem to make sense to me. So I ran down there to take a look at the job, and I spent about a day and a half just sitting in that theater trying to study out a better answer to the problem."

"Finally it came to me, and we ended up by submitting an alternate proposal based on the installation of a central station system using one 50-ton compressor to handle the main floor, with another 40-ton compressor for the balcony. These two compressors were set up to operate off a common condenser, but each had its own individual fan unit.

"So actually, our alternate pro-

posal called for only 90 tons of cooling, as opposed to 120 tons, at a cost for the engineered system of only \$34,000, in contrast to the \$48,000 cost of the packaged installation. What's more, we were able to point out to the prospect that the service costs on the central station system would be considerably less than on the packaged units.

"As so often happens," King reports, "when faced with figures like these, the prospect bought our alternate proposal instead of the type of system originally specified."

HOSPITAL COOLING . . .

Continued from page 78

Under normal conditions, a mixture of 50% outside and 50% return air is conditioned and distributed. Outside air passes through fiber glass filters before entering the system. Return air is passed through a charcoal-cell type filter to remove hospital odors. When necessary, the system can

automatically consume 100% outside air.

The air conditioning system was designed by William M. Wallace, of Durham, N.C. Installation was made by the Pinnell Heating & Air Conditioning and Modern Roofing & Sheet Metal Works, both of which are Augusta air conditioning contractors.

SHERER-GILLETT CO. RENEWS SCHOLARSHIP

The Sherer-Gillett Co. has again announced to Marshall (Mich.) high school seniors the offer of a two-year scholarship in refrigeration technology at Ferris Institute, Big Rapids, Mich.

The scholarship has a total cash value of \$1200 with the added incentive of full-time employment for the summer vacation at the company's factory, plus the opportunity for employment with the company following graduation.

Objectives of the scholarship are to channel at least one graduate each year into the commercial refrigeration field.

MANY DUTIES • ALL WELL DONE

A Versatile Performer
Wherever Liquids are Used

TYPE GGU
Aurora Side
Section Centrifugal Pump

Discharge may be at any of eight positions. Only the pump end need be of special metals to handle corrosives. Combines numerous quality features for extra years of service. Capacities to 1800 G.P.M.; Heads to 190 ft. Write for Bulletin 107-M.

AURORA
Always PUMPS

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA PUMP DIVISION
THE NEW YORK AIR BRAKE COMPANY

21 LOUCKS STREET

AURORA • ILLINOIS

Circle No. 114 on Reader Service Card
& AIR CONDITIONING • JUNE, 1955

...STOPS CONDENSATION DRIP

NoDrip® PREVENTS RUST — ANYONE CAN APPLY

NoDrip plastic coating is easily applied to tanks, containers, suction lines, vats, pipes, walls, ceilings, etc. NoDrip adheres to metal, concrete, brick, plaster. It forms a seamless 100% moisture-proof covering that is effective as soon as dry. Acid, alkali and brine resistant.

FREE...
Interesting 32-page Handbook shows what NoDrip is and what it does.
SEND COUPON TODAY

SEND NoDrip HANDBOOK

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ADDRESS _____

CITY _____ STATE _____

J. W. MORTELL CO. • 553F BURCH ST. • KANKAKEE, ILL.
TECHNICAL COATINGS SINCE 1895
Circle No. 115 on Reader Service Card

Fischer Tailors Its New Building To Jobbing Use

Building layout for a jobbing business in air conditioning and refrigeration equipment seldom comes closer to the ideal than has been achieved in the new structure now occupied by J. Geo. Fischer & Sons, Inc., in Oak Park, Mich.

Located to serve conveniently the entire Detroit metropolitan area as well as other southern parts of the state, the new building's design reflects the recommendations of E. S. Jones, branch manager, based upon careful study of the requirements of a business of this kind.

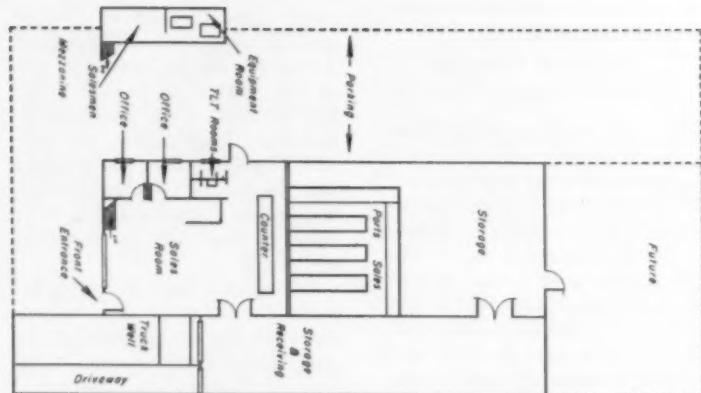
First of all, the structure is 63' wide and 120' long and is positioned on a lot 100' wide and 200' long to give maximum parking space for customers, while allowing reserve space for future building expansion.

All of the 37' excess width of the lot is retained on one side of the building, where a side entrance door is located so that light weight packages may be carried by the shortest route to the parking area.

But heavy shipping—either incoming or outgoing—has special accommodations on the other side of the building. There, one driveway slopes downward from the street toward the dock, so that when a truck is in position for loading its floor will be approximately level with the main floor of the shipping room. Because truck levels are not always the same, changing even during a period of loading or unloading, a self-adjusting steel ramp is permanently installed to serve as a bridge between a truck and the dock.

The dock itself is recessed about 20' into the building, so that all operations at it will be sheltered by the structure's main roof.

Paralleling the inclined driveway is a level driveway leading to a garage-type door, so that other trucks may be driven directly onto the floor of the shipping room. In such case, the trucks may be loaded either by hand or by a high-



CONVENIENCE is the keynote in the new building of J. Geo. Fischer & Sons, Inc. (Above) Layout shows positions of movable shelving and counters. (Below) Two levels for loading trucks, both under shelter, are provided.



lift industrial truck which the company also uses for placing delivered products and cartons in storage.

Thus, the main shipping room is slightly wider than the double driveways. Its ceiling trusses are about 18' from the floor. As the room extends the full length of the building, it provides ample space for storing all large-size objects, with plenty of area open at its front for trucks driven onto its floor.

Double doors at one side of the shipping room permit easy transfer of sample refrigerators and other items either into the sales room which also is at the front of the building, or into the parts storage area which is behind the sales room.

Another feature of the floor layout is that only one small corner part of the main sales-display room is partitioned off for private offices. One of these is for the branch manager; the other is a planning room for the salesmen. At the rear of the two offices are two toilet rooms.

Above this partitioned area is

a balcony large enough to hold the hot water boilers which provide radiant floor heating for the whole establishment, a 10-ton air conditioning unit, and a conference area for the salesmen.

In addition to the main air conditioning system which extends by overhead ducts to serve the sales-display room and the parts storage area, there is a $\frac{3}{4}$ -ton conditioner set into the walls of each of the private offices.

Jones also is enthusiastic about the fact that every storage cabinet, shelving and counter is movable, to permit easy readjustment of total space to match normal business variations, and especially to anticipate the day when a 50-foot expansion at the rear of the present structure will be authorized.

The new structure, at 12751 Capital Avenue, was built after the company had been located for five years on West Grand Boulevard. It is the fourth building project completed by Fischer in the last two years, the others having been at Saginaw, Alpena, and Jackson, Mich. The company itself has been in business 60 years.

DAPPERT ELECTED V.P. AT MUELLER BRASS

A. C. Dappert, formerly general sales manager, was elected vice president in charge of sales for Mueller Brass Co. at the recent meeting of the company's board of directors.

At the same meeting, Frank M. Levy, formerly director of research, was elected vice president in charge of research, and Ernest Schleusener, formerly works manager, was elected vice president in charge of manufacturing.

Re-elected officers at the meeting were: Fred L. Riggan, Sr., president; Fred L. Riggan, Jr., executive vice president; William R. Walsh, and Russell M. Tree, vice presidents; W. M. Edmondson, secretary-treasurer, L. D. Little, assistant treasurer, and Zelda Dunkel, assistant secretary.

President Riggan reported that sales this year were approximately 30% higher than those of a year ago, and that the company's refrigeration and air conditioning products were among those recording the greatest gains.

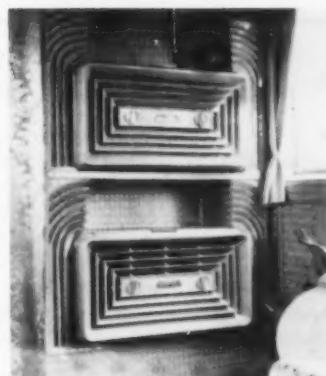
USAIRCO ANNOUNCES INCREASE IN PRICES

A price increase of approximately 6% on most models of its RK-type preassembled central station equipment has been announced by U. S. Air Conditioning Corp. Maintenance of equipment quality in the face of increasing material, component and labor costs, was given as the cause for this action.

Equipment covered by the increase includes RK factory-built central station air conditioning plants with built-in evaporative condensers; DRK units, with dual refrigeration circuits, and RKW units with shell-and-tube condensers.

FIRM APPOINTED

Factory Sales & Engineering, Inc., New Orleans, La., has been appointed representative for the southern half of Louisiana and the southern two-thirds of Mississippi by J. F. Pritchard & Co. of California, manufacturer of cooling towers.



REGAL COMFORT for Great Britain's Queen Elizabeth was provided by these two 1-hp Mitchell room air conditioners during her visit to Ceylon last year. Here's the novel way they were installed on a private railway coach used by the queen. They were furnished by Mitchell's local distributor on the tropical island.

NAMED FOR FAR WEST

Elliott-Williams Co. has appointed Charles R. Rogers, San Mateo, Calif., its representative for California, Nevada, Arizona, Utah, and West Texas.



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INDEX TO ADVERTISERS

June, 1955

A

Acme Industries, Inc.	6
Airtemp Div., Chrysler Corp.	10
Alco Valve Co.	1
Allin Mfg. Co.	124
American Automatic Ice Machine Co.	9
American Bitumuls & Asphalt Co.	117
American Brass Co.	11, 100
American Motors Corp., Kelvinator Div.	103
Anderson Chemical Co.	112
Ansol Chemical Co.	97
A-P Controls Corp.	Cover 3
Aurora Pump Co.	133

B

Barber-Colman Co.	101
Beach-Russ Co.	119
Belt-Ice Corp.	70
Bevco Co.	126
Bonney Forge & Tool Works	87
Brunner Mfg. Co.	2

C

Carver Pump Co.	120
Century Electric Co.	19
Chase Brass & Copper Co.	111
Chemical Solvent Co.	114
Commercial Credit Corp.	7
Connor Engineering Corp.	21
Copeland Refrigeration Corp.	Cover 2
Cornell-Dubilier Electric Corp.	71
Curtis Refrig. Machine Div., Curtis Mfg. Co.	8

D

Davison Chemical Co.	16
Detroit Controls Corp.	15
Dole Refrigerating Co.	13
Dover Mfg. Co.	113
Dow Chemical Co.	28, 29
Drayer-Hanson, Inc., Subsidiary of National-U.S. Radiator Corp.	33
Duro Metal Products Co.	95

E

Eastern Industries, Inc.	129
Eston Div., American Potash & Chemical Corp.	92

F

Federal Refrigerator Mfg. Co.	88
Fine Products Co.	120

Flexonics Corp.	118
Franklin Electric Co., Inc.	57
Frick Co.	126
Frigid, Inc.	43

G

General Chemical Div., Allied Chemical & Dye Corp.	91
General Tire & Rubber Co.	82
Gibson Refrigerator Co.	31
Goulds Pumps, Inc.	93

H

Halstead & Mitchell	24
Henry Valve Co.	23
Highside Chemicals Co.	20
S. A. Hirsh Mfg. Co.	37

I

Ideal Cooler Corp.	135
Imperial Brass Mfg. Co.	53
Industrial Devices, Inc.	135
Ingersoll-Rand Co.	27
International Register Co.	35, 123

J

Janitrol Heating & Air Conditioning Div., Surface Combustion Corp.	89
--	----

K

Kelvinator Div., American Motors Corp.	103
Kinney Mfg. Co.	25
Kold-Hold Div., Tranter Mfg. Inc.	121
Kramer Trenton Co.	59

L

La Crosse Cooler Co.	128
Larkin Coils, Inc.	124
Lehigh Mfg. Co.	26
Linde Air Products Co., Unit of Union Carbide & Carbon Corp.	40, 132, 135

M

M-B Mfg. Co.	110
Maid-O-Mist, Inc.	122
Marley Co., Inc.	85
Jas. P. Marsh Corp.	94
Milwaukee Electric Tool Corp.	104
Miracle Adhesives Corp.	108
Modine Mfg. Co.	96
J. W. Mortell Co.	116, 133
Mueller Brass Co.	5
Mueller Climatrol, Div. of Worthington Corp.	77

P

Packless Metal Hose, Inc.	128
Patterson Kelley Co., Inc.	34
Pearless Pump Div., Food Machinery & Chemical Corp.	12
Penn Boiler & Burner Mfg. Corp.	93
Penn Controls, Inc.	44
Pinnacle Equipment Corp.	122
Prolesel, Inc.	106
Pyramid Instrument Co.	39

R

Radio Corp. of America	61
Ranca, Inc.	130
Reading Tube Corp.	109
Redmond Distributors, Inc.	117
Refrigeration Engineering, Inc.	17
Revere Copper & Brass, Inc.	107
Rotary Seal Co.	101

S

Servel, Inc.	42
Shana Mfg. Co.	124
Sporlan Valve Co.	32
Sprague Products Co.	79
Superior Valve & Fittings Co.	90

T

Tecumseh Products Co.	127
Temptrite Products Corp.	115
Tenney Engineering, Inc.	22
Texas Co.	98
Thermal Agency	84

U

Uniflow Mfg. Co.	33, 63, 102
Union Asbestos & Rubber Co.	72
Union Carbide & Carbon Corp.	
Linde Air Products Co.	40, 132, 135

V

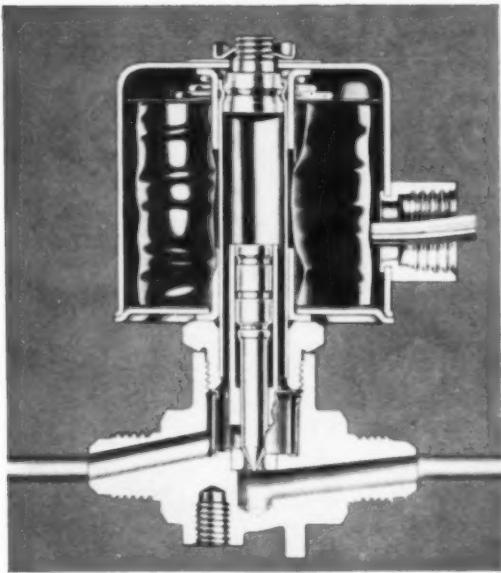
Victory Metals Mfg. Corp.	63
Virginia Smelting Co.	36, 67

W

Wagner Electric Co.	4, 30
Wagner Tool & Supply Co.	125
Whitehall Engineering Co.	64
White-Rodgers Electric Co.	65
A. H. Witt Co.	132
Wolverine Tube Div., Calumet & Hecla	41
Worthington Corp.	38

Y

Yates-American Machine Co.	84
----------------------------	----



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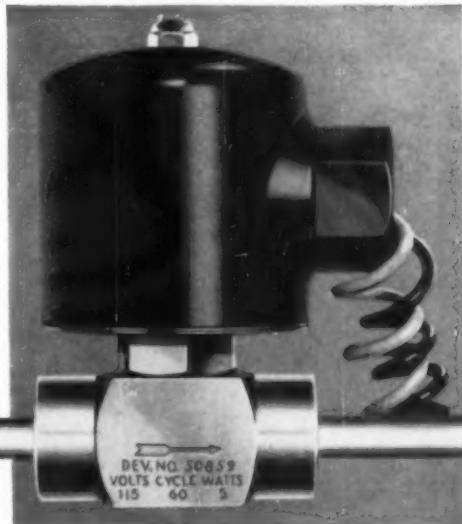
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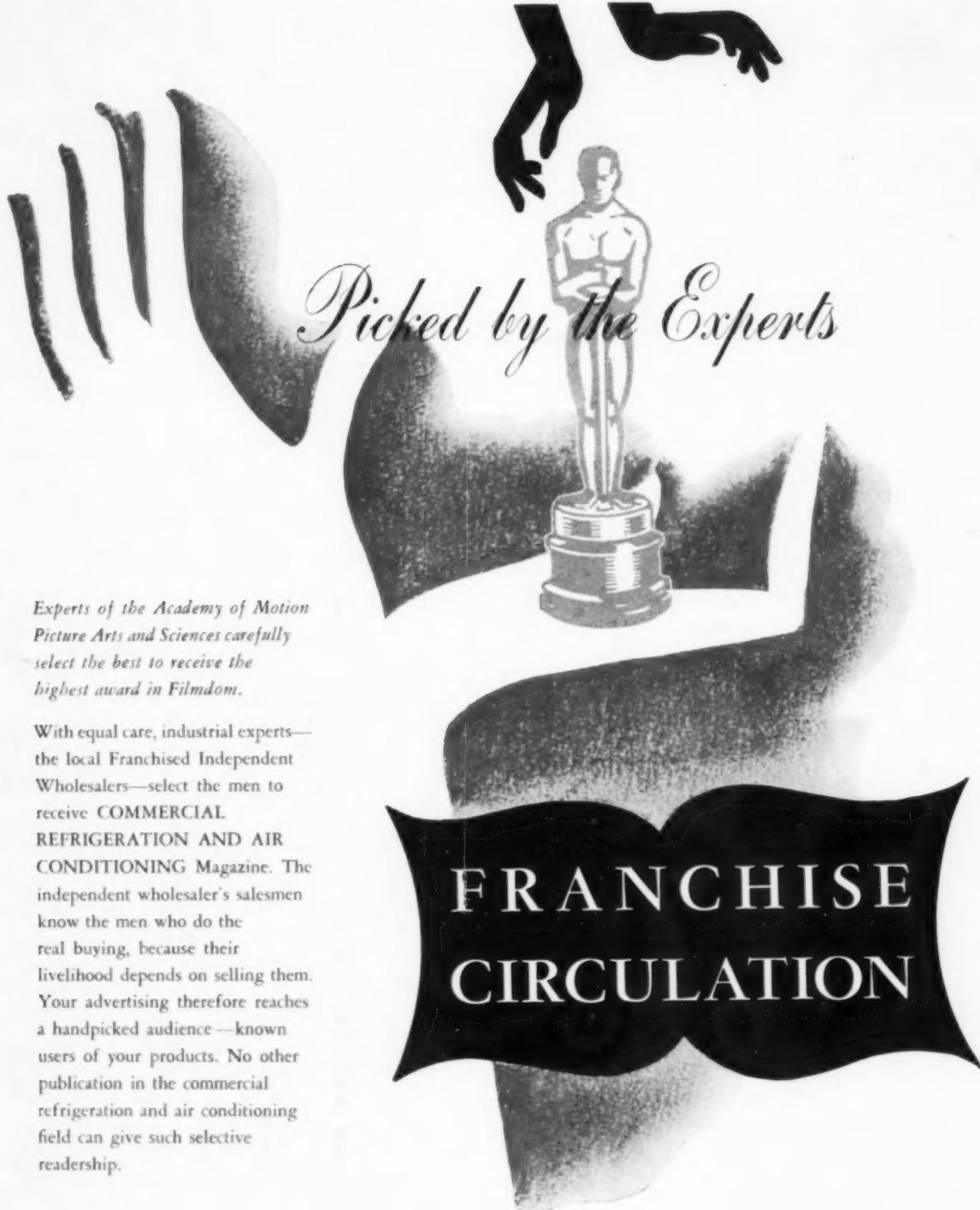


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